

December 24<sup>th</sup>, 2010

United States Environmental Protection Agency  
Region IX  
75 Hawthorne Street  
San Francisco, California 94105  
Attn: Kathi Moore, Manager

Re: Request for information regarding the facility located at 11800 Sherman Way,  
North Hollywood, California

Please be advised I am forwarding copies of the list of sampling & investigation reports with supporting documentation.

This represents most of the material & information I have on hand, regarding the subsurface investigations. I did not occupy the facility at the time & the lessee are both out of business.

There is no concern with confidentiality at this time.

Enclosure B

- 1) Other than the documents supplied in Attachment 1, I have not had any other investigations by the EPA or any other agency.
  - a) Attachment 1 does represent a complete listing of all soil, soil gas sampling, conducted at this facility. I was never required to do groundwater sampling.
  - b) We do not have any future testing requirements at this facility
- 2) We do not have any groundwater wells at the facility.

( A,B,C, & D) Same as above.
- 3) Reference is made to S.C.S. Engineer's 8/2/2004 letter, to explain why the proposed sampling was not conducted. This was a proposed contingency soils plan.

Please review S.C.S. Engineer's 8/2/2004 letter report, enclosed, in response to the 1984 spill incident. It was determined that there could not have been any Chromium VI as a result of the spill. The letter from the California Regional Water Board, dated September 30<sup>th</sup>, 2004, copy enclosed, agreed with the S.C.S. Engineers results & did not require any further soils sampling.

- 4) There is no diligence or property transfer on the facility.

If any further information is required, I will be happy to supply it.

Thank You

  
Ralph Woodhouse, Trustee/Woodhouse Family Trust

**FX-6 Personal Privacy**

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION101 CENTRE PLAZA DRIVE  
MONTEREY PARK, CA 91754-2156  
(213) 266-7500  
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May 18, 1993

Mr. Irving Berken

**FX-6 Personal Privacy**

Mr. Ralph Woodhouse

**FX-6 Personal Privacy**WELL INVESTIGATION PROGRAM-SUPPLEMENTAL SUBSURFACE INVESTIGATION  
11800 Sherman Way, North Hollywood, California (File No. 111.0728)

Reference is made to your consultant's, Kleinfelder, Inc. report dated February 19, 1993, containing results of the Supplemental Subsurface Soils and Soils Gas Investigation completed at your facility. We have reviewed and evaluated your report and have the following comments.

The reported analytical test results from soil gas investigation completed across the site, supplemental soil test boring completed to evaluate former chemical/waste storage area, vapor degreaser operation, illegal hazardous waste discharge area have identified the following:

A. SOIL GAS INVESTIGATION

## 1. Halogenated volatile organic compounds:

- a. 1,1,1 Trichloroethane (TCA) was identified at the following soil gas sample locations: V-8, V-11 through V-16, V-18 through V-20 and V-24 and V-25 completed to evaluate former chemical/waste storage machine shop areas, vapor degreaser operation and hazardous waste spill area at a concentration ranging from 5.5  $\mu\text{g}/\text{l}$  to 33.3  $\mu\text{g}/\text{l}$ . The highest concentrations were identified at V-14 completed at the chemical/waste storage area adjacent to the loading dock. Trace concentrations of TCA (detected between MDL and PQL) were identified in soil gas sample locations completed south of the loading dock and parking lot areas (soil gas sampling points: V-21 through V-23, V-4, V-5, V-7, V-9 and V-10). Trace concentration of 1,1,2 Trichloroethene (TCE) and Tetrachloroethene (PCE) were identified only at V-20, completed at former vapor degreaser area. Trace concentrations of 1,1, Dichloroethene (DCE)

Mr. Irving Berken  
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were identified only at soil gas location V-17 completed at the parking lot, south of the loading dock area.

2. Aromatic volatile organic compounds:

- a. Xylenes were identified at the soil gas sample location V-8 completed at the former hazardous waste spill area at a concentration 5.1  $\mu\text{g/l}$ . Trace concentration were identified at V-10 and V-16 completed east of the former chemical/waste storage area located adjacent to the loading dock. Trace concentration of toluene were identified at the former chemical/waste storage area, hazardous spill area, southeast part of the property and parking lot area located south of the loading dock. Trace concentration of Ethylbenzene were identified only at soil gas location V-8, V-10 and V-16 completed near the former hazardous spill and east of the loading dock areas.
- b. No other aromatic volatile organic compounds were identified above ( 0.5  $\mu\text{g/l}$ ) the limit of detection specified for the procedure in any soil gas sample analyzed.

B. Soil Test Boring Investigation.

1. Halogenated Volatile Organic Compounds:

- a. 1,1,1 Trichloroethane (TCA) was identified only at one soil test boring location, C-1 completed at the former chemical/waste storage area at concentration of 130  $\mu\text{g/kg}$  at a depth of 55 feet below ground surface. TCA was not detected in any other soil samples collected from 60 to 105 feet below the ground surface.

A duplicate analysis of the soil sample collected at 55 feet detected 118  $\mu\text{g/kg}$  of TCA. In addition, soil sample was collected from the end of the brass sampling tube (C-1-55.5) from the depth of 55 feet. Obtaining any soil sample from the end of the sampling tube for chemical analyses of volatile organic compounds is not acceptable practice and could result in disturbance of the target volatile organic compounds.

- b. No other halogenated volatile organic compounds were identified above the limit of detection ( 1  $\mu\text{g/kg}$ ) specified for the procedure in any soil samples analyzed.
2. No aromatic hydrocarbons were identified above the limit of detection ( 1  $\mu\text{g/kg}$ ) specified for the procedure in any soil samples analyzed.
3. Petroleum-based hydrocarbons were identified at the soil test borings C-1, completed at the former chemical waste storage area adjacent to the loading dock, C-2 located at the southeast corner of the facility adjacent to the concrete bermed containment area and C-6 completed at the former hazardous spill area at concentrations ranging from 13 mg/kg to 433 mg/kg. The highest concentration was identified at test boring C-1 at a depth of fifty five feet below ground surface. The concentration of TPH at C-1 decreased with depth explored and below sixty five feet the concentrations were below the limit of detection ( 1.0 mg/kg) specified for the procedure.

During October 1990 soils test borings were completed during Phase II subsurface investigation to a depth of 55 feet below ground surface. These test borings identified petroleum-based hydrocarbons, aromatic hydrocarbons and chlorinated volatile organic compounds. Relatively high concentration of petroleum-based hydrocarbons were identified ( 880 mg/kg) at the former chemical/waste storage area. In addition, 1,1,1-TCA was identified at the depth of 55 feet and aromatic volatile organic compounds as benzene and toluene were identified at depths explored from 45 through 55 feet below ground surface at the southeastern corner of the facility and is associated with storage of various chemicals. As a result, the supplemental subsurface soils investigation was conducted to confirm as well as to further define the vertical and lateral extent of contaminants previously identified. The Initial Soil Gas Investigations was completed in order to evaluate the extend of vapor phase contaminants at point source and non-point source areas that were not evaluated during Phase I and Phase II investigations completed on-site.


Shallow soil gas investigation completed during December 1992, identified presence of the 1,1,1 TCA as the predominant contaminant in soil gas samples obtained and appears to be associated with degreasing operations and chemical/waste storage activities. In addition, PCE, DCE and TCE used in the past ( prior Mercury

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Mr. Ralph Woodhouse  
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Aerospace operations on-site ) by former occupants: Microdot Inc. and Mr. Woodhouse/Mr. Berken operations were also identified at the former machine shop area, vapor degreaser area and parking lot ( east of the loading dock) area. Analytical test results obtained from shallow, 5 feet deep soil gas sample locations did not indicate other than previously identified point source areas, however only a shallow soil gas investigation was completed on-site. No additional depth specific ( upper array) sampling points ( 15 feet below ground surface) were explored in order to further determine the extent of vapor phase contaminant and no discrete zone vapor monitoring probes were placed at the deep soil test boring location to complete soil gas investigation on-site. As a result no final determination can be made regarding the extend or magnitude of the vapor phase contaminants in the subsurface.

However, only 1,1,1-Trichloroethane (TCA) was identified at the soil test boring samples in moderate concentrations and total petroleum hydrocarbons were not identified below a depth of 80 feet in any soil samples analyzed during this phase of subsurface soil investigation. Since groundwater underlies the site at approximately 260 feet below ground surface, no further subsurface soils investigation is required at your facility at this time. However, you may be required to conduct the supplemental subsurface soils investigation in the future as additional soils and/or groundwater data becomes available from facilities in the surrounding area.

Please contact me at (213) 266-7546 or Ms. Ann Zaskodna at (213) 266-7585, if you have any questions regarding this matter.

  
DAVID A. BACHAROWSKI  
Environmental Specialist IV

cc: Mr. Chris Stubbs, U.S. EPA Region IX  
Mr. Edward J. Trosper, Kleinfelder Inc.  
Mr. Rubbin Guerra, Microdot Aerospace Fastening System  
Mr. Jerome Flament, Mercury Aerospace Fasteners  
Mr. William Waller, Pillsbury, Madison & Sutro  
Mr. Bruce Wojcik, LA County, Forester and Fire Warden  
Mr. Carl Tripp, City of Los Angeles, Industrial Waste  
Department

**REPORT  
SUBSURFACE SOIL ASSESSMENT  
11800 Sherman Way  
North Hollywood, California  
CRWQCB File Number 111.0728**

**Project 70-4157-01**

**February 19, 1993**

**This document was prepared for use by Pillsbury Madison and Sutro, Birken/Woodhouse, their designees, and the California Regional Water Quality Control Board only for the purposes stated. See "Limitations" section.**



**CONFIDENTIAL - ATTORNEY WORK PRODUCT PRIVILEGE**


**REPORT PREPARED FOR:**


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**REPORT**  
**SUBSURFACE SOIL ASSESSMENT**  
11800 Sherman Way  
North Hollywood, California  
CRWQCB File Number 111.0728

**Project 70-4157-01**

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**February 19, 1993**



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## 1.0 SUMMARY

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In September 1992, Kleinfelder, Inc. (Kleinfelder) was retained by Pillsbury Madison and Sutro on behalf of Birken/Woodhouse to conduct an environmental assessment at the property located at 11800 Sherman Way (property), North Hollywood, California. The purpose of the assessment was to characterize and determine the vertical and lateral extent of soil contamination, if any, in the vicinity of four locations formerly identified during two previous assessments and through an historical site audit, and to assess whether conditions at the property reflect other locations at which contamination may have occurred. The locations formerly identified are: 1) the chemical/waste storage area, located near the existing loading dock; 2) the chemical/waste storage area, located near the southern property boundary; 3) an alleged hazardous waste discharge area, reportedly located south and west of the loading dock area during the time that Mercury Aerospace, Inc. operated the property; and 4) the former vapor degreaser location, inside the building.

The aforementioned assessment of the property was required by the California Regional Water Quality Control Board, Region 4 (CRWQCB). As indicated in their letter to Birken/Woodhouse, dated August 4, 1992, the CRWQCB required that a soil vapor survey and supplemental subsurface soils investigation be conducted. The assessment described herein complies with the CRWQCB requirements.

Preliminary site assessments were conducted at the property by Enviropro, Inc. (Enviropro) in February 1989 and GeoSyntec Consultants (GeoSyntec) in November 1990. The studies were performed on behalf of Mercury Aerospace, Inc., a former tenant of Birken/Woodhouse. Assessment reports documenting the work were submitted to the CRWQCB in May 1989 and February 1991, respectively. Laboratory analytical results presented in the reports indicated that minor contamination was detected in soil samples collected by Enviropro to a depth of 10 feet below ground surface (bgs) and by GeoSyntec to a depth of 55 feet bgs.



The CRWQCB concluded that the Enviropro and GeoSyntec assessments did not adequately assess the lateral and vertical extent of soil contamination. The CRWQCB required that additional work be conducted at the property. In response to this request, Kleinfelder submitted a Work Plan describing proposed assessment activities and methodologies to the CRWQCB in September 1992. The subsequent revised workplan was approved by the CRWQCB on December 18, 1992.

On December 21 and 22, 1992, Kleinfelder utilized Transglobal Environmental Geochemistry, Inc. (TEG), a CRWQCB-approved on-site laboratory, to conduct a soil vapor survey at the property. The survey was implemented prior to drilling. Its primary purpose was to help identify areas for assessment and to provide information for locating soil borings. During the survey, soil vapor samples were collected from twenty-five, onsite, CRWQCB-approved locations. Each sample was collected at a depth of approximately 5 feet bgs.

The 25 soil vapor samples were analyzed for the CRWQCB List of 22 Primary Target compounds. The analyses conducted included United States Environmental Protection Agency (U.S. EPA) Methods 8010 and 8020 for halogenated volatile organic compounds and aromatic volatile organic compounds, respectively, with laboratory detection limits (LDLs) of 0.5 micrograms per liter ( $\mu\text{g/L}$ ).

Trace concentrations of toluene and from 12.3  $\mu\text{g/L}$  to 33.3  $\mu\text{g/L}$  1,1,1-trichloroethane (TCA) were detected in soil vapor samples collected in the vicinity of the chemical/waste storage area, located near the existing loading dock. Trace concentrations of trichloroethene (TCE) and perchloroethene (PCE) were measured in one sample collected near the former degreaser location. TCA concentrations of 5.5  $\mu\text{g/L}$  and 12.7  $\mu\text{g/L}$  were also measured in the vapor samples collected near the former degreaser location. A trace concentration of dichloroethene (DCE) was reported in one sample collected near the eastern property boundary. Trace concentrations of TCA, toluene, ethylbenzene and/or total xylenes were also detected near the chemical/waste storage area located near the southern property boundary, at an alleged area where hazardous wastes formerly were discharged, and in the machine shop area. Trace concentrations of the same compounds were also detected at various other locations on the property. However, the levels of soil vapor concentrations measured and the distribution of detected contaminants did not indicate any areas where contamination may have occurred in addition to those four areas previously identified.



Subsequent to the soil vapor survey, eight soil borings were drilled at locations selected and approved in the field by the CRWQCB. A total of 96 undisturbed soil samples were collected in borings C-1 through C-8 for potential laboratory chemical analyses for the presence of total recoverable petroleum hydrocarbons (TRPH or oils and grease); benzene, toluene, ethylbenzene, and total xylenes (BTEX); and halogenated volatile organic compounds using U.S. EPA Methods 418.1, 8020, and 8010, respectively. A total of 70 soil samples were submitted under Chain-of-Custody protocol for laboratory chemical analyses.

To fulfill CRWQCB requirements, forty feet of soil samples (at 5-foot intervals), with TRPH and BTEX concentrations below LDLs, were collected below the deepest detected contamination in soil borings C-1 through C-6. The LDL achieved by the laboratory for TRPH was 1.0 mg/kg, for each BTEX compound was 1.0  $\mu\text{g/kg}$ , and for each volatile organic compound was 1.0  $\mu\text{g/kg}$ .

TRPH compounds were detected at concentrations ranging from 12 mg/kg to 433 mg/kg in 9 of the 39 soil samples analyzed from soil borings C-1, C-2, and C-6. TRPH compounds were non-detect in all of the soil samples collected for analysis from the other borings. BTEX was not detected in any of the 70 soil samples analyzed.

In soil boring C-1, TRPH was detected in the samples collected from 55 feet, 60 feet, and 65 feet bgs. The measured concentrations decreased with depth from 433 mg/kg to 90 mg/kg to 12 mg/kg, respectively. Soil samples collected from 70 feet through 105 feet were non-detect. In soil boring C-2, TRPH was reported in samples from 50 feet, 55 feet, 60 feet, 80 feet and 85 feet bgs at concentrations of 13 mg/kg, 129 mg/kg, 38 mg/kg, 91 mg/kg, and 35 mg/kg, respectively. TRPH was not detected at depths of 90 through 135 feet. In soil boring C-6, TRPH was reported in the sample from 1 foot bgs at a concentration of 20 mg/kg. Soil samples collected in this boring from 5 feet to 40 feet bgs were non-detect.

To further characterize the TRPH present in the soil, the sample collected from 55 feet bgs in soil boring C-1 was analyzed using a simulated distillation (SIMS) analysis by Modified ASTM Method #2887. Results of the SIMS analysis indicated that the sample contained heavy hydrocarbons, with carbon numbers above C30. Information provided to Kleinfelder indicates that cutting oil was the most predominantly used hydrocarbon product at the property. Cutting



oils commonly have a carbon number range between C10 and C16 (verbal conversation, Calscience Environmental Laboratories). Therefore, the hydrocarbon compounds detected may be naturally occurring or derived from a heavier, unidentified synthetic product. Heavy hydrocarbons are less mobile in soil and, therefore, are less likely to migrate to groundwater than light weight hydrocarbons. In addition, they readily degrade via natural processes such as biodegradation. The heavy hydrocarbons present in the site soils do not appear to contain BTEX.

Groundwater was not encountered during drilling at any of the boring locations. Information obtained from the Los Angeles County Flood Control District (verbal communication) indicates that the depth to groundwater beneath the site is approximately 300 feet bgs. Based on this and other site-specific characteristics and available State Water Resources Control Board guidelines (CRWQCB Leaking Underground Fuel Tank Manual, October 1989), the maximum concentration of TRPH that can be left in place at the property at depths of 200 feet bgs or less without threatening groundwater is 1,000 mg/kg. The TRPH concentrations reported for soil samples collected on the property are below this concentration. No TRPH was reported below a depth of 85 feet bgs. BTEX was not detected in any of the samples containing detectable concentrations of TRPH.

TCA was the only halogenated volatile organic compound detected, and it was only detected in one of the 70 samples analyzed. It was reported at a concentration of 130  $\mu\text{g/kg}$  in the soil sample collected in soil boring C-1 from a depth of 55 feet bgs (C-1-55). A split from the same sample was reported to contain 118  $\mu\text{g/kg}$  of TCA. A sample taken from the other end of the brass sampling tube (C-1-55.5) was reported to contain 29  $\mu\text{g/kg}$  of TCA. Soil boring C-1 was drilled to 105 feet bgs, and TCA was not detected in samples collected from 60 through 105 feet.

Soil cleanup guidelines for TCA have not been established by California Code of Regulation (CCR) Title 22 or by local regulatory agencies. Typically, local regulatory agencies use the drinking water standard value for TCA as a soil cleanup standard. CCR Title 22, Chapter 15, Article 5.5 indicates that the drinking water standard for TCA is 200  $\mu\text{g/L}$ . The TCA values of 130, 118, and 29 in the soil sample collected at 55 feet bgs are less than this value, and therefore should not pose a threat to groundwater.



The soil sample results did not confirm the presence of BTEX, TCE, PCE, and DCE, which were detected at trace concentrations in soil vapor samples collected from 5-foot bgs at various locations at the property.

Based on the results of this assessment and previous environmental assessment work at the property, the four locations of concern formerly identified have been adequately assessed. No additional locations at which contamination may have occurred were identified. Based on the soil contaminant concentrations, the distribution of contamination and agency cleanup criteria, the soil contamination present at the site poses a highly unlikely potential threat, if any, to the underlying groundwater. Further assessment or remediation of the soil contamination detected on the property is not warranted. Based on observations by Kleinfelder personnel during this assessment and the results of reported laboratory analyses, no further action is recommended at this time. It is recommended that the CRWQCB require no further assessment on the property and close File Number 111.0728.

This report is subject to the limitations discussed in Section 9 of this report.



## 2.0 INTRODUCTION

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In September 1992, Kleinfelder was retained by Pillsbury Madison and Sutro on behalf of Birken/Woodhouse to conduct an environmental assessment at the property located at 11800 Sherman Way, North Hollywood, California (refer to Figure 1 - Property Location Map and Figure 2 - Property Map With Soil Vapor Survey and Boring Locations). The purpose of the assessment was to characterize and determine the vertical and lateral extent of soil contamination, if any, in the vicinity of four locations formerly identified during two previous assessments and through an historical site audit, and to assess whether conditions at the property reflect other locations at which contamination may have occurred. The locations formerly identified are: 1) the chemical/waste storage area, located near the existing loading dock; 2) the chemical/waste storage area, located near the southern property boundary; 3) an alleged hazardous waste discharge area, reportedly located south and west of the loading dock area during the time that Mercury Aerospace, Inc. operated the property; and 4) the former vapor degreaser location, inside the building.

This environmental assessment was required by the California Regional Water Quality Control Board, Region 4 (CRWQCB). As indicated in their letter to Birken/Woodhouse, dated August 4, 1992 (refer to Appendix A - California Regional Water Quality Control Board Correspondence), the CRWQCB required that a soil vapor survey and supplemental subsurface soils investigation be conducted. The assessment described herein complies with the CRWQCB requirements, as described in their letter to Birken/Woodhouse.



### 3.0 BACKGROUND

Enviropro conducted a screening shallow subsurface soil assessment on February 17, 1989, on the property. Their assessment consisted of hand augering and soil sampling three shallow test borings (A-1 through A-3). The borings were situated in the lowest onsite topographic areas where surface contamination, if any, would be likely to accumulate (refer to Figure 2). Each boring was hand augered to a depth of 10 feet bgs and soil samples were collected at depths of 1-foot, 5-feet, and 10-feet bgs. Analyses of these samples indicated low concentrations of TRPH, BTEX, and the halogenated volatile organic compounds TCA, TCE, PCE, and DCE (refer to Table 1 - Enviropro Chemical Analyses of Soil Samples).

On October 24, 1990, GeoSyntec conducted a Phase II subsurface soil assessment. Their assessment consisted of drilling and soil sampling four soil borings (B-1 through B-4). Their work was conducted to further assess the lateral and vertical extent of the soil contamination identified by Enviropro. Borings B-1 through B-3 each were drilled to a total depth of 55 feet bgs. A total of 29 soil samples were collected for laboratory analyses in borings B-1 through B-3 at five foot intervals starting at 10 foot bgs to the total depth of each boring (except that no soil sample was recovered from 35 feet bgs from soil boring B-1). Due to site restrictions, boring B-4 was hand augered to a total depth of 10 feet bgs and three soil samples were collected from it at 1 foot, 5 feet, and 10 feet bgs (refer to Figure 2).

GeoSyntec reported that TRPH, benzene, toluene, and TCA were detected in soil samples collected from Borings B-1 through B-4 (refer to Table 2 - GeoSyntec Chemical Analyses of Soil Samples). Trace concentrations of TRPH were detected intermittently between 20 and 50 feet bgs in Borings B-1 through B-3. TRPH concentrations of 450 mg/kg and 880 mg/kg were detected in soil samples collected at 55 feet bgs in Borings B-1 and B-2, respectively. The 1-foot sample collected in Boring B-4 contained 300 mg/kg TRPH. Benzene concentrations of 21  $\mu\text{g/kg}$  and toluene concentrations of 14  $\mu\text{g/kg}$  were detected in the soil samples from Boring B-3 collected from 45 feet, 50 feet, and 55 feet bgs. A trace concentration of benzene was also detected in the soil sample collected from Boring B-4 at 1 foot bgs.





The only halogenated volatile organic compound reported was TCA. A trace concentration was detected only in the soil sample collected from boring B-2 from a depth of 55 feet bgs.

The Enviropro report, dated May 1, 1989, and the GeoSyntec report dated February 5, 1991 describing assessment activities and laboratory analyses were submitted to the CRWQCB on behalf of Mercury Aerospace, Inc., a former tenant of Birken/Woodhouse. The CRWQCB determined that the two assessments did not adequately assess the lateral and vertical extent of soil contamination. This prompted the CRWQCB to request that additional activities be performed to further assess subsurface conditions at the property in a letter to Birken/Woodhouse dated August 4, 1992 (refer to Appendix A).



## 4.0 SCOPE OF WORK

The scope of work conducted by Kleinfelder and required by the CRWQCB for this project to assess suspected contaminated soils at the Birken/Woodhouse facility consisted of:

- Conducting an onsite soil vapor survey entailing the collection and analysis of twenty-five soil vapor samples from twenty-five locations (refer to Figure 2), using TEG, a certified/registered (California Department of Health Services - Environmental Laboratory Accreditation Program [CDOHS - ELAP]) mobile testing laboratory;
- Analyzing twenty-five soil vapor samples for halogenated volatile organic compounds and aromatic volatile organic compounds (CRWQCB List of 22 Primary Target compounds) using U.S. EPA Methods 8010 and 8020, respectively;
- Drilling and sampling six soil borings, C-1 through C-6, to total depths sufficient that 40 feet of soil samples (at 5-foot intervals), with TRPH and BTEX concentrations below LDLs, were collected below the deepest detected contamination. Soil boring C-1 was drilled to assess the chemical/waste storage area, located near the existing loading dock. Soil borings C-2, C-3, and C-4 were drilled to assess the chemical/waste storage area, located near the southern property boundary. Soil borings C-5 and C-6 were drilled to assess an alleged hazardous waste discharge area, reportedly located south and west of the loading dock area during the time that Mercury Aerospace, Inc. operated the property;
- Drilling and sampling two soil borings, C-7 and C-8, each a total depth of 15 feet bgs to assess the former vapor degreaser location, inside the building;
- Attempting to collect undisturbed soil samples from depths of 50 feet to 105 feet bgs, at five-foot intervals in soil boring C-1; from depths of 50 feet to 130 feet bgs, at five-foot intervals in soil boring C-2; from depths of 50 feet to 95 feet bgs, at five-foot intervals in soil boring C-3; from depths of 5 feet bgs to 40 feet bgs, at five-foot intervals in soil boring C-4; from depths of one foot bgs, and from 5 feet bgs to 40 feet bgs, at five-foot



intervals in soil borings C-5 and C-6; and from depths of one foot bgs, and from 5 feet to 15 feet bgs, at five-foot intervals in soil borings C-7 and C-8 for onsite laboratory chemical analyses;

- Submitting 70 subsurface samples for onsite chemical analyses. Samples were analyzed for TRPH, BTEX, and halogenated volatile organic compounds using U.S. EPA Methods 418.1, 8020, and 8010, respectively. One soil sample was analyzed for halogenated volatile organic compounds in triplicate (C-1-55, C-1-55 DUP, and C-1-55.5); and
- Preparing a report of findings utilizing data collected during this study as well as data reported from previous investigations.



## 5.0 FIELD ACTIVITIES

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### 5.1 HEALTH AND SAFETY PLAN

Kleinfelder prepared a Health and Safety Plan in accordance with the Code of Federal Regulations 1910.120, to address Kleinfelder's employees health and safety for assessment activities in December 1992. The health and safety plan provided contingency plans for emergencies which might have arisen during assessment activities, and provided guidelines for personal protective equipment and safety procedures to be used by Kleinfelder's field staff.

### 5.2 SOIL VAPOR SURVEY

On December 21 and 22, 1992, Kleinfelder provided a CRWQCB-approved mobile laboratory, TEG, to collect soil vapor samples from twenty-five CRWQCB-approved soil vapor locations on the property (refer to Figure 2). TEG was under the observation of Mr. Edward J. Trosper, R.G. 4586, C.E.G. 1526, a California Registered Geologist, on December 21, 1992 and Kleinfelder's onsite geologist, Mr. Robert J. Bucola, on December 21 and 22, 1992. The soil vapor survey was implemented prior to drilling the soil borings. This allowed for a thorough evaluation of additional areas, if any, for assessment. The soil vapor survey was conducted, at the request of the CRWQCB, to facilitate a more thorough understanding of potential vapor phase transport of contaminants and possible identification of additional soil boring locations, if necessary.

In addition to the 18 soil vapor sampling locations proposed by Kleinfelder, the CRWQCB required two soil vapor locations (V-19 and V-20) at the former degreaser area, two soil vapor locations (V-21 and V-22) at an alleged area where hazardous wastes formerly were disposed, and three soil vapor locations (V-23 through V-25) at the former machine shop area (refer to Figure 2). Soil gas samples were collected at an approximate depth of 5 feet bgs. TEG analyzed the soil vapor samples in their onsite mobile laboratory. Soil vapor survey methodology followed by TEG is included in Appendix B - TEG Soil Vapor Survey Report.



The 25 soil vapor samples were analyzed for the CRWQCB List of 22 Primary Target compounds (halogenated volatile organic and aromatic volatile organic compounds using U.S. EPA Methods 8010 and 8020, respectively). LDLs of 0.5  $\mu\text{g/L}$  were established following CRWQCB guidelines. Hydrocarbon-free blanks were run at the beginning of each day by TEG and periodically throughout the survey as quality control measures. Duplicate soil vapor samples were run to verify the initial measurements and see that data were repeatable.

### 5.3 DRILLING AND SOIL SAMPLING LOCATIONS

On December 28 through December 31, 1992, Kleinfelder's subcontractor, WesTech Environmental Drilling (Santa Fe Springs, California), used a Mobil B-61 truck-mounted drill rig to drill six, 8-inch diameter soil borings (soil borings C-1 through C-6) and a Simco skid trailer-mounted drill rig to drill two, six-inch diameter soil borings (soil borings C-7 and C-8) under the field supervision of a Kleinfelder geologist. Drilling, soil sampling, and backfilling activities for soil borings C-1 and C-2 were observed by Mr. Edward J. Trosper, RG 4586, CEG 1526, a California Registered Geologist. The remaining borings, C-3 through C-8, were drilled under the technical guidance of Mr. Trosper, observed by Kleinfelder's onsite geologist, Mr. Robert J. Bucola. Mr. Bucola contacted Mr. Trosper a minimum of twice daily, approximately at noon and again at the end of the day's field activity, regarding updates on the assessment progress.

Soil borings C-1 through C-6 were drilled to total depths sufficient that 40 feet of soil samples (at five-foot intervals), with TRPH and BTEX concentrations below LDLs, were collected below the deepest detected contamination. Soil boring C-1 was drilled to a depth of 105 feet bgs to assess the chemical/waste storage area, located near the loading dock. Soil boring C-1 was a "twin-boring" to GeoSyntec's Boring B-1. Soil samples were collected from soil boring C-1 from 5 feet to 105 feet bgs, at five-foot intervals, to enable Kleinfelder to describe the subsurface stratigraphy existing beneath the property. Soil samples collected from 50 feet to 105 feet bgs were submitted for onsite laboratory analyses, per CRWQCB request.

Soil borings C-2 and C-3 were drilled to depths of 130 feet and 95 feet bgs, respectively, to assess the chemical/waste storage area, located near the southern property boundary. Soil boring C-2 was drilled north of the concrete-lined, bermed containment area and soil boring C-3 was drilled northwest of the containment area. Soil boring C-2 was a "twin boring" to GeoSyntec's Boring B-2, and soil boring C-3 was a "twin boring" to GeoSyntec's Boring B-3. Soil samples



were collected from soil borings C-2 and C-3 from 5 feet bgs to the total depth of each boring to enable Kleinfelder to describe the subsurface stratigraphy. A soil sample was not recovered from soil boring C-2 at a depth of 75 feet bgs, due to the presence, at that depth, of a cobble larger in diameter than the sampler. Soil samples collected from 50 feet to the total depth of each boring were submitted for onsite laboratory analyses, per CRWQCB request.

Soil boring C-4 was drilled southwest of the concrete-lined, bermed containment area to a total depth of 40 feet bgs. Soil boring C-4 was also drilled to assess the chemical/waste storage area, located near the southern property boundary. Soil samples were collected from soil boring C-4, at 5 foot intervals, from 5 feet to 40 feet bgs for onsite laboratory analyses, per CRWQCB request.

Soil borings C-5 and C-6 were each drilled to a total depth of 40 feet bgs to assess the soil beneath an alleged hazardous waste discharge area, reportedly located south and west of the loading dock area during the time that Mercury Aerospace, Inc. operated the property. Soil samples were collected in these borings from depths of one foot bgs, and from 5 feet to 40 feet bgs, at five-foot intervals, for laboratory analyses, per CRWQCB request. A soil sample was not recovered from soil boring C-5 at 30 feet bgs, due to poor sample recovery.

Soil borings C-7 and C-8 were each drilled to a total depth of 15 feet bgs adjacent to the former vapor degreaser area located inside the existing building on the property. Due to site restrictions encountered inside the building located on the property, a Simco drill rig was utilized to drill soil borings C-7 and C-8. Soil samples were collected in these borings from depths of one foot bgs, and from 5 feet to 15 feet bgs, at five-foot intervals, for laboratory analyses, per CRWQCB request. A soil sample was not recovered from soil boring C-8 at 5 feet bgs, likely due to loss of the sample from the sampler.

Soil cuttings were placed in federal Department of Transportation-approved hazardous waste drums until a proper disposal method through laboratory analyses of soil samples can be established. These drums were stored on site.



Locations of soil borings are shown on Figure 2 and boring logs are included in Appendix C - Boring Log Explanation and Soil Boring Logs. Soil sampling protocol is included in Appendix D - Soil Sampling Protocol. Upon completion of drilling activities, soil borings were backfilled with Enviropug bentonite chips and hydrated with potable water.



## 6.0 GEOLOGY AND HYDROGEOLOGY

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The property is located in the eastern half of Section 1, Township 1 North, Range 15 West, San Bernardino baseline and principal meridian. The approximate ground surface elevation of the property is 745 feet above mean sea level (MSL). The nearest surface water to the property is Tujunga Wash, which is located approximately 1.75 miles west of the property. The surface in the area of the property slopes to the south, based on the United States Geological Survey 7.5 Minute Van Nuys Topographic Quadrangle, photorevised 1972.

The property is located in the San Fernando Valley, which is a depositional basin bordered by the Santa Monica, San Gabriel, and other lower mountains to the south, north, and east, respectively.

The nearest significant faults to the property are the North Hollywood, Verdugo, Mission Hills, and Northridge faults, located approximately 0.8 miles south, 1.6 miles northeast, 6.6 miles northwest, and 5 miles northwest of the property, respectively. These faults are considered seismically active but have not been designated for further site-specific assessment under the Alquist-Priolo Special Studies Zone Act of 1972.

The property lies within the San Fernando hydrologic subarea of the Los Angeles - San Gabriel River hydrologic unit, which is part of the Los Angeles drainage province. Water-bearing deposits in the San Fernando Valley consist of Recent alluvium, Late Quaternary terrace deposits, and the lower Pleistocene Saugus Formation. The greatest yield of water comes from the Quaternary alluvial fan deposits of gravel and coarse sand which reach a depth of more than 1,000 feet locally (1958, State of California, Department of Conservation, Division of Mines and Geology Bulletin 172). Based on information obtained from the Los Angeles County Flood Control District (verbal communication), wells numbered 4929 and 3820-C are located within a one mile radius of the property. Well 4929 is situated at an elevation of 746 feet MSL and Well 3820-C is situated at an elevation of 708.2 feet MSL. The depth to groundwater for these wells was measured at 295.8 and 250.9 feet bgs on October 8, 1992, respectively. Based on the site elevation of 745 feet MSL, groundwater beneath the site is expected to be encountered at approximately 300 feet bgs. Groundwater was not encountered during drilling at any of the boring locations in this investigation.





The soil stratigraphy encountered during this assessment primarily consisted of Recent to Upper Pleistocene gravelly sands to a maximum depth of investigation of 130 feet bgs. These gravelly sands were deposited primarily by the Los Angeles River.

The gravelly sands were predominantly light yellowish brown to brown, fine to coarse grained, medium dense, subangular, and moist. These soils contained a trace of biotite. The gravelly sands were interbedded with lenses of cobble-sized clasts from approximately 50 feet bgs to 130 feet bgs.



## 7.0 LABORATORY RESULTS OF SOIL VAPOR SAMPLES AND SOIL SAMPLES

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### 7.1 BACKGROUND

Twenty-five soil vapor samples were collected by TEG at survey location points approved in the field by CRWQCB. Each soil vapor sample was submitted for onsite laboratory chemical analyses and was analyzed for BTEX and halogenated volatile organic compounds using U.S. EPA Methods 8020 and 8010, respectively. The laboratory report is included in Appendix B.

Soil samples collected during drilling activities were hand delivered to TEG. A total of 96 soil samples were collected from the eight soil borings and 70 of these were analyzed. The 70 soil samples analyzed may be broken down as follows: 12 from C-1; 16 from C-2; 10 from C-3; 8 from C-4; 8 from C-5; 9 from C-6; 4 from C-7; and 3 from C-8. Each soil sample submitted for onsite laboratory chemical analyses from soil borings C-1 through C-8 was analyzed for TRPH, BTEX, and halogenated volatile organic compounds using U.S. EPA Methods 418.1, 8020, and 8010, respectively. The laboratory report is included in Appendix E - Laboratory Reports and Chain-of-Custody Records.

### 7.2 ANALYTICAL RESULTS FOR SOIL VAPOR SAMPLES

Analytical results for soil vapor survey locations V-1 through V-25 are summarized in Table 3. Three property maps, which have been annotated with the soil vapor sample locations and detected concentrations of TCA and toluene are included in Appendix B.

TCA was detected in 21 of the soil vapor samples collected, at trace concentrations to 33.3  $\mu\text{g/L}$  (refer to Table 3 - Kleinfelder Chemical Analyses of Soil Vapor Samples). TEG reported maximum concentration levels of TCA of 33.3  $\mu\text{g/L}$  and 32.4  $\mu\text{g/L}$  and intermittent trace toluene concentrations in soil vapor samples V-11 through V-15, collected in the vicinity of the chemical/waste storage area, located near the loading dock (refer to Figure 2). Trace concentrations of TCE and PCE and 12.3  $\mu\text{g/L}$  of TCA were measured in sample V-20, and 5.5



$\mu\text{g/L}$  TCA was measured in sample V-19, collected near the former degreaser area. A trace concentration of DCE was reported in the soil vapor sample from location SV-17 near the eastern property boundary.

At various other locations throughout the property, toluene was detected in 12 soil vapor samples, ethylbenzene in three vapor samples and total xylenes in the same three vapor samples at trace concentrations. Benzene was not detected.

### 7.3 ANALYTICAL RESULTS FOR SOIL SAMPLES

Analytical results for soil borings C-1 through C-8 are summarized in Table 4 - Kleinfelder Chemical Analyses of Soil Samples. LDLs for TRPH analyses were 1 mg/kg and for BTEX and halogenated volatile organic compound analyses were 1  $\mu\text{g/kg}$  for each compound. The LDL of each analytical compound is determined by the laboratory. It is a threshold at or above which the laboratory can confidently report a compound as "detected". For laboratory results, refer to Appendix E.

TRPH compounds were detected at concentrations ranging from 12 mg/kg to 433 mg/kg in 9 of the 39 soil samples analyzed from soil borings C-1, C-2, and C-6. TRPH compounds were non-detect in the remaining 61 soil samples that were analyzed. BTEX was not detected in any of the 70 soil samples analyzed.

In soil boring C-1, TRPH was detected in the samples collected from 55 feet, 60 feet, and 65 feet bgs. The concentrations measured decreased with depth from 433 mg/kg to 90 mg/kg to 12 mg/kg, respectively. Soil samples collected from 70 feet to 105 feet bgs were non-detect. In soil boring C-2, TRPH was reported in samples from 50 feet, 55 feet, 60 feet, 80 feet and 85 feet bgs at concentrations of 13 mg/kg, 129 mg/kg, 38 mg/kg, 91 mg/kg, and 35 mg/kg, respectively. Soil samples collected from 90 feet to 135 feet bgs were non-detect. In soil boring C-6, TRPH was reported in the sample from 1 foot bgs at a concentration of 20 mg/kg. Soil samples collected in this boring from 5 feet to 40 feet bgs were non-detect.

To further characterize the TRPH present in the soil, the sample collected from 55 feet bgs in soil boring C-1 was analyzed using a simulated distillation (SIMS) analysis by Modified ASTM Method #2887. Results of the SIMS analysis indicated that the sample contained heavy



hydrocarbons, with carbon numbers above C30. Information provided to Kleinfelder indicates that cutting oil was the most predominantly used hydrocarbon product at the property. Cutting oils commonly have a carbon number range between C10 and C16 (verbal conversation, Calscience Environmental Laboratories). Therefore, the hydrocarbon compounds detected may be naturally occurring or derived from a heavier, unidentified synthetic product. Heavy hydrocarbons are less mobile in soil and, therefore, are less likely to migrate to groundwater than light weight hydrocarbons. In addition, they readily degrade via natural processes such as biodegradation. The heavy hydrocarbons present in the site soils do not appear to contain BTEX.

The only halogenated volatile organic compound detected in the 70 samples analyzed was TCA, and TCA was detected in only one of these 70 samples. TCA was reported at a concentration of 130  $\mu\text{g/kg}$  in the soil sample collected in boring C-1 from a depth of 55 feet bgs (C-1-55). A split from the same sample was reported to contain 118  $\mu\text{g/kg}$  of TCA. A sample taken from the other end of the brass sample tube (C-1-55.5) was reported to contain 29  $\mu\text{g/kg}$  of TCA. Soil boring C-1 was drilled to 105 feet bgs, and TCA was not detected in the bottom 55 feet of the soil column.



## 8.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on the reported laboratory reports and other data collected during this project and previous environmental assessment work at the site, and are subject to the limitations stated in this report.

- The four locations of concern formerly identified (the chemical/waste storage area, located near the loading dock; the chemical/waste storage area, located near the southern property boundary; an alleged hazardous waste discharge area, reportedly located south and west of the loading dock area during the time that Mercury Aerospace, Inc. operated the property; and the former vapor degreaser location, inside the building) have been adequately assessed. Additional locations where contamination may have occurred were not identified during this assessment.
- TRPH-contaminated soil is limited vertically and laterally. TRPH was detected in only three of the borings advanced during this assessment and was not detected in any of those borings below a depth of 85 feet bgs. Based on site-specific characteristics, including the estimated depth to underlying groundwater (approximately 300 feet bgs), and guidelines provided by the CRWQCB Leaking Underground Fuel Tank Manual (October 1989), the TRPH concentrations reported for soil samples collected on the property are below levels considered a potential threat to underlying groundwater. The maximum concentration of TRPH that can be left in place at the property at depths of 200 feet bgs or less without threatening groundwater is 1,000 mg/kg (refer to Appendix F - Table 2-1 of the Leaking Underground Fuel Tank Manual, October 1989). The maximum concentration of TRPH measured in the soil was 433 mg/kg at 55 feet bgs. In addition, the TRPH compounds present in the soil may diminish with time via natural processes such as biodegradation. BTEX was not detected in any of the samples analyzed.
- It is possible that the TRPH compounds measured in the subsurface soils are the result of naturally-occurring organic compounds. Naturally-occurring hydrocarbon compounds do not require clean up based on the CERCLA exemption for naturally-occurring substances.



- TCA-contaminated soil is limited vertically and laterally. TCA was detected in only one of the 70 samples analyzed. The vertical limit of the TCA in soil was assessed. Soil boring C-1 was drilled to 105 feet bgs, and concentrations of TCA were not reported in soil samples collected from the bottom 55 feet of the boring.
- Soil cleanup guidelines for TCA have not been established by California Code of Regulation (CCR) Title 22 or by local regulatory agencies. Typically, local regulatory agencies use the drinking water standard for TCA as a soil cleanup standard. CCR Title 22, Chapter 15, Article 5.5 indicates that the drinking water standard for TCA allowed for a drinking water supply is 200  $\mu\text{g/L}$ . The TCA values of 130, 118, and 29  $\mu\text{g/kg}$  in the soil sample collected at 55 feet bgs are less than this standard, and therefore, should not pose a threat to groundwater.
- The soil sample results did not confirm the presence of BTEX, TCE, PCE, and DCE, which were detected at trace concentrations in soil vapor samples collected from 5-feet bgs at various locations at the property.

Based on the results of this assessment and previous environmental assessment work at the property, the four locations of concern formerly identified have been adequately assessed. No additional locations at which contamination may have occurred were identified. Based on the TRPH and TCA concentrations measured in the soil, the localized distribution of the contaminants and agency cleanup criteria, the soil contamination present at the site poses a highly unlikely potential threat, if any, to the underlying groundwater. Further assessment or remediation of the soils at the property is not warranted. Based on observations by Kleinfelder personnel during this assessment and the results of reported laboratory analyses, no further investigation or remediation is recommended at this time. It is recommended that the CRWQCB require no further assessment on the property and close File Number 111.0728.



## 9.0 LIMITATIONS

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### REPORT USE AND BASES

This document was prepared for the use of Pillsbury Madison and Sutro, Birken/Woodhouse, their designees, and the CRWQCB. Land use, site conditions (both onsite and offsite) or other factors may change over time, and additional work may be required with the passage of time.

Based on the intended use of this report, Kleinfelder may require that additional work be performed and that an updated report be issued. Kleinfelder is not liable for any use of this report by parties other than Pillsbury Madison and Sutro, Birken/Woodhouse, their designees, The CRWQCB and other agencies to which Birken/Woodhouse may submit this report.

The conclusions and recommendations presented in this report are based on information obtained by Kleinfelder during this assessment, facts and data contained in documents, which Kleinfelder reviewed as part of this assessment, information communicated to Kleinfelder during discussions pertaining to the property, and analytical results provided by Transglobal Environmental Geochemistry, Inc.. Kleinfelder assumes no liability for facts or conclusions that exist of which it is unaware, and no warranty, expressed or implied, about the conditions of the property.

The scope of work conducted for this project is not intended to be all inclusive, identify all potential concerns, or to eliminate the possibility of having some degree of environmental problem. It is possible that variations in the soil or groundwater conditions could exist beyond the points explored in this project. Additionally, unpermitted, undocumented, or concealed improvements to the property could exist beyond points explored during the course of the project. Also, changes in the conditions found could occur at some time in the future due to variations in rainfall, temperature, regional water usage, or other factors. Geologic data contained herein should not be used for geotechnical purposes.

Services performed by Kleinfelder under this contract have been conducted in a manner consistent with the level and skill ordinarily exercised by members of our profession currently practicing in



southern California. No other representations, expressed or implied, and no warranty or guarantee is included or intended in this report.







**TABLE 1**  
**ENVIROPRO CHEMICAL ANALYSES OF SOIL SAMPLES**  
 11800 Sherman Way  
 North Hollywood, California  
 Project 70-4157-01  
 Sampled February 1989

EPA Test Method	A1-1'	A1-5'	A1-10'	A2-1'	A2-5'	A2-10'	A3-1'	A3-5'	A3-10'
418.1 (mg/kg) TRPH	16.4	26.2	ND	144	16.4	16.4	108	16.4	13.1
<u>8020 (µg/kg)</u>									
Benzene	2.7	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	4.8	2.9	ND	ND	ND	ND	3.0	2.4	2.0
Ethylbenzene	3.4	2.3	3.0	ND	ND	ND	ND	ND	ND
Xylenes	13.1	8.2	6.2	ND	ND	ND	7.5	6.4	4.5
<u>8010 (µg/kg)(a)</u>									
1,1-Dichloroethylene (DCE)	8.4	8.8	29.3	55.2	ND	ND	8.3	5.6	3.2
1,1,1-Trichloroethane (TCA)	12.3	2.0	ND	61.2	ND	ND	1.1	ND	ND
Tetrachloroethylene (PCE)	ND	ND	ND	24.3	ND	ND	ND	ND	ND
Trichloroethylene (TCE)	ND	ND	ND	ND	4.3	ND	ND	ND	ND

**NOTES:**

Data from Enviropro report dated May 1, 1989

mg/kg = Milligrams per kilogram

µg/kg = Micrograms per kilogram

ND = Not detected above laboratory detection limits (unknown for U.S. EPA Methods 8020 and 8010, and 10 mg/kg for U.S. EPA Method 418.1)

A1-1' = Boring A-1, sample collected at 1 foot bgs

TRPH = Total recoverable petroleum hydrocarbons

(a) = All other analytes ND

(1)ER93-003

Project 70-4157-01

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T1-1

**TABLE 2**  
**GEOSYNTEC CHEMICAL ANALYSES OF SOIL SAMPLES**  
 11800 Sherman Way  
 North Hollywood, California  
 Project 70-4157-01  
 Sampled October 1990

Boring Number	Approximate Vertical Depth (feet)	U.S. EPA Method 418.1 TRPH (mg/kg)	U.S. EPA Method 8020			U.S. EPA Method 8010			
			Aromatic Volatile Organic Compounds ( $\mu\text{g/kg}$ )		Xylenes	Halogenated Volatile Organic Compounds ( $\mu\text{g/kg}$ ) <sup>(a)</sup>			
			Benzene	Toluene	Ethylbenzene	DCE	PCE	TCA	TCE
B-1	10	ND	ND	ND	ND	ND	ND	ND	ND
	15	ND	ND	ND	ND	ND	ND	ND	ND
	20	ND	ND	ND	ND	ND	ND	ND	ND
	25	ND	ND	ND	ND	ND	ND	ND	ND
	30	Trace	ND	ND	ND	ND	ND	ND	ND
	40	ND	ND	ND	ND	ND	ND	ND	ND
	45	ND	ND	ND	ND	ND	ND	ND	ND
	50	Trace	ND	ND	ND	ND	ND	ND	ND
	55	450	ND	ND	ND	ND	ND	ND	ND
B-2	10	ND	ND	ND	ND	ND	ND	ND	ND
	15	ND	ND	ND	ND	ND	ND	ND	ND
	20	Trace	ND	ND	ND	ND	ND	ND	ND
	25	ND	ND	ND	ND	ND	ND	ND	ND
	30	ND	ND	ND	ND	ND	ND	ND	ND
	35	ND	ND	ND	ND	ND	ND	ND	ND
	40	Trace	ND	ND	ND	ND	ND	ND	ND
	45	Trace	ND	ND	ND	ND	ND	ND	ND
	50	Trace	ND	ND	ND	ND	ND	ND	ND
	55	880	ND	ND	ND	ND	ND	Trace	ND

**NOTES:**

Data from GeoSyntec report dated February 5, 1991

mg/kg = Milligrams per kilogram  
 $\mu\text{g/kg}$  = Micrograms per kilogram  
 ND = Not detected above laboratory detection limits (0.005 mg/kg for U.S. EPA Methods 8020 and 8010, and 10 mg/kg for U.S. EPA Method 418.1)  
 TRPH = Total recoverable petroleum hydrocarbons  
 DCE = 1,1-Dichloroethylene  
 TCA = 1,1,1-Trichloroethane  
 PCE = Tetrachloroethylene  
 TCE = Trichloroethylene  
 (a) = All other analytes ND

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**TABLE 2**  
**GEOSYNTEC CHEMICAL ANALYSES OF SOIL SAMPLES**  
 11800 Sherman Way  
 North Hollywood, California  
 Project 70-4157-01  
 Sampled October 1990

Boring Number	Approximate Vertical Depth (feet)	U.S. EPA Method 418.1 TRPH (mg/kg)	U.S. EPA Method 8020			U.S. EPA Method 8010			
			Aromatic Volatile Organic Compounds ( $\mu\text{g/kg}$ )		Xylenes	Halogenated Volatile Organic Compounds ( $\mu\text{g/kg}$ ) <sup>(a)</sup>			
			Benzene	Toluene	Ethylbenzene	DCE	PCE	TCA	TCE
B-3	10	ND	ND	ND	ND	ND	ND	ND	ND
	15	ND	ND	ND	ND	ND	ND	ND	ND
	20	ND	ND	ND	ND	ND	ND	ND	ND
	25	ND	ND	ND	ND	ND	ND	ND	ND
	30	ND	ND	ND	ND	ND	ND	ND	ND
	35	ND	ND	ND	ND	ND	ND	ND	ND
	40	ND	ND	ND	ND	ND	ND	ND	ND
	45	Trace	21	14	ND	ND	ND	ND	ND
	50	ND	21	14	ND	ND	ND	ND	ND
	55	ND	21	14	ND	ND	ND	ND	ND
B-4	1	300	Trace	ND	ND	ND	ND	ND	ND
	5	ND	ND	ND	ND	ND	ND	ND	ND
	10	ND	ND	ND	ND	ND	ND	ND	ND

**NOTES:**

Data from GeoSyntec report dated February 5, 1991

mg/kg = Milligrams per kilogram  
 $\mu\text{g/kg}$  = Micrograms per kilogram  
 ND = Not detected above laboratory detection limits (0.005 mg/kg for U.S. EPA Methods 8020 and 8010, and 10 mg/kg for U.S. EPA Method 418.1)  
 TRPH = Total recoverable petroleum hydrocarbons  
 DCE = 1,1-Dichloroethylene  
 TCA = 1,1,1-Trichloroethane  
 PCE = Tetrachloroethylene  
 TCE = Trichloroethylene  
 (a) = All other analytes ND

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**TABLE 3**  
**KLEINFELDER CHEMICAL ANALYSES OF SOIL VAPOR SAMPLES**  
 11800 Sherman Way  
 North Hollywood, California  
 Project 70-4157-01  
 Sampled December 21 and 22, 1992

Sample Location Number	Approximate Vertical Depth (feet)	U.S. EPA Method 8020				U.S. EPA Method 8010			
		Aromatic Volatile Organic Compounds ( $\mu\text{g/L}$ )				Halogenated Volatile Organic Compounds ( $\mu\text{g/L}$ ) <sup>(a)</sup>			
		Benzene	Toluene	Ethylbenzene	Xylenes	TCE	TCA	DCE	PCE
V-1	5	ND	Trace	ND	ND	ND	ND	ND	ND
V-2	5	ND	Trace	ND	ND	ND	ND	ND	ND
V-3	5	ND	Trace	ND	ND	ND	ND	ND	ND
V-4	5	ND	Trace	ND	ND	ND	Trace	ND	ND
V-5	5	ND	Trace	ND	ND	ND	Trace	ND	ND
V-6	5	ND	ND	ND	ND	ND	ND	ND	ND
V-7	5	ND	Trace	ND	ND	ND	Trace	ND	ND
V-8	5	ND	Trace	Trace	5.1	ND	6.5	ND	ND
V-9	5	ND	ND	ND	ND	ND	Trace	ND	ND
V-10	5	ND	Trace	Trace	Trace	ND	Trace	ND	ND
V-11	5	ND	Trace	ND	ND	ND	14.2	ND	ND
V-12	5	ND	ND	ND	ND	ND	12.3	ND	ND
V-13	5	ND	ND	ND	ND	ND	32.4	ND	ND
V-14	5	ND	Trace	ND	ND	ND	33.3	ND	ND
V-15	5	ND	ND	ND	ND	ND	15.9	ND	ND
V-16	5	ND	Trace	Trace	Trace	ND	5.5	ND	ND
V-17	5	ND	Trace	ND	ND	ND	Trace	Trace	ND
V-18	5	ND	ND	ND	ND	ND	5.3	ND	ND
V-19	5	ND	ND	ND	ND	ND	5.5	ND	ND
V-20	5	ND	ND	ND	ND	Trace	12.7	ND	Trace
V-21	5	ND	ND	ND	ND	ND	Trace	ND	ND
V-22	5	ND	ND	ND	ND	ND	Trace	ND	ND
V-23	5	ND	ND	ND	ND	ND	Trace	ND	ND
V-24	5	ND	ND	ND	ND	ND	14.4	ND	ND
V-25	5	ND	ND	ND	ND	ND	6.6	ND	ND

**NOTES:**

$\mu\text{g/L}$  = Micrograms per liter  
 ND = Not detected above laboratory detection limits of 0.5  $\mu\text{g/L}$ .  
 TCE = 1,1,2 Trichloroethene  
 TCA = 1,1,1 Trichloroethane  
 DCE = 1,1 Dichloroethene  
 PCE = Tetrachloroethene  
 (a) = All other analytes ND



**TABLE 4**  
**KLEINFELDER CHEMICAL ANALYSES OF SOIL SAMPLES**  
 11800 Sherman Way  
 North Hollywood, California  
 Project 70-4157-01  
 Sampled December 28 through 30, 1992

Boring Number	Approximate Vertical Depth (feet)	U.S. EPA Method 8020				U.S. EPA Method 418.1 TRPH (mg/kg)	U.S. EPA Method 8010	
		Aromatic Volatile Organic Compounds (mg/kg)					Halogenated Volatile Organic Compounds	
		Benzene	Toluene	Ethylbenzene	Xylenes		1,1,1-Trichloroethane (mg/kg) <sup>(a)</sup>	
C-1	50	ND	ND	ND	ND	ND	ND	
C-1	55	ND	ND	ND	ND	433	0.130	
C-1	55 DUP	ND	ND	ND	ND	NA	0.118	
C-1	55.5	ND	ND	ND	ND	NA	0.012	
C-1	60	ND	ND	ND	ND	90	ND	
C-1	65	ND	ND	ND	ND	12	ND	
C-1	70	ND	ND	ND	ND	ND	ND	
C-1	75	ND	ND	ND	ND	ND	ND	
C-1	80	ND	ND	ND	ND	ND	ND	
C-1	85	ND	ND	ND	ND	ND	ND	
C-1	90	ND	ND	ND	ND	ND	ND	
C-1	95	ND	ND	ND	ND	ND	ND	
C-1	100	ND	ND	ND	ND	ND	ND	
C-1	105	ND	ND	ND	ND	ND	ND	
C-2	50	ND	ND	ND	ND	ND	ND	
C-2	55	ND	ND	ND	ND	13	ND	
C-2	60	ND	ND	ND	ND	129	ND	
C-2	65	ND	ND	ND	ND	38	ND	
C-2	70	ND	ND	ND	ND	ND	ND	
C-2	75	ND	ND	ND	ND	ND	ND	
C-2	80	ND	ND	ND	ND	91	ND	
C-2		ND	ND	ND	ND	35	ND	

**NOTES:**

mg/kg = Milligrams per kilogram  
 µg/kg = Micrograms per kilogram  
 ND = Not detected above laboratory detection limits  
 (0.001 mg/kg for U.S. EPA Methods 8020 and 8010  
 and 1 mg/kg for U.S. EPA Method 418.1)  
 TRPH = Total recoverable petroleum hydrocarbons  
 NA = Not analyzed  
 DUP = Duplicate sample for U.S. EPA Method 8010 only  
 (a) = All other analytes ND

(1)ER93-003  
 Project 70-4157-01  
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TABLE 4  
KLEINFELDER CHEMICAL ANALYSES OF SOIL SAMPLES  
11800 Sherman Way  
North Hollywood, California  
Project 70-4157-01  
Sampled December 28 through 30, 1992

Boring Number	Approximate Vertical Depth (feet)	U.S. EPA Method 8020				U.S. EPA Method 418.1 TRPH (mg/kg)	U.S. EPA Method 8010	
		Aromatic Volatile Organic Compounds (mg/kg)					Halogenated Volatile Organic Compounds	
		Benzene	Toluene	Ethylbenzene	Xylenes		1,1,1-Trichloroethane (mg/kg)(*)	
C-4	10	ND	ND	ND	ND	ND	ND	
C-4	15	ND	ND	ND	ND	ND	ND	
C-4	20	ND	ND	ND	ND	ND	ND	
C-4	25	ND	ND	ND	ND	ND	ND	
C-4	30	ND	ND	ND	ND	ND	ND	
C-4	35	ND	ND	ND	ND	ND	ND	
C-4	40	ND	ND	ND	ND	ND	ND	
C-5	1	ND	ND	ND	ND	ND	ND	
C-5	5	ND	ND	ND	ND	ND	ND	
C-5	10	ND	ND	ND	ND	ND	ND	
C-5	15	ND	ND	ND	ND	ND	ND	
C-5	20	ND	ND	ND	ND	ND	ND	
C-5	25	ND	ND	ND	ND	ND	ND	
C-5	30	ND	ND	ND	ND	ND	ND	
C-5	35	ND	ND	ND	ND	ND	ND	
C-5	40	ND	ND	ND	ND	ND	ND	
C-6	1	ND	ND	ND	ND	ND	ND	
C-6	5	ND	ND	ND	ND	20	ND	
C-6	10	ND	ND	ND	ND	ND	ND	
C-6	15	ND	ND	ND	ND	ND	ND	
C-6	20	ND	ND	ND	ND	ND	ND	

NOTES:

mg/kg = Milligrams per kilogram  
 µg/kg = Micrograms per kilogram  
 ND = Not detected above laboratory detection limits  
 (0.001 mg/kg for U.S. EPA Methods 8020 and 8010  
 and 1 mg/kg for U.S. EPA Method 418.1)  
 TRPH = Total recoverable petroleum hydrocarbons  
 NA = Not analyzed  
 DUP = Duplicate sample for U.S. EPA Method 8010 only  
 (a) = All other analytes ND

(1)ER93-003  
 Project 70-4157-01  
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**TABLE 4**  
**KLEINFELDER CHEMICAL ANALYSES OF SOIL SAMPLES**  
 11800 Sherman Way  
 North Hollywood, California  
 Project 70-4157-01  
 Sampled December 28 through 30, 1992

Boring Number	Approximate Vertical Depth (feet)	U.S. EPA Method 8020				U.S. EPA Method 418.1 TRPH (mg/kg)	U.S. EPA Method 8010 <u>Halogenated Volatile Organic Compounds</u> 1,1,1-Trichloroethane (mg/kg)(a)
		<u>Aromatic Volatile Organic Compounds (mg/kg)</u>					
		Benzene	Toluene	Ethylbenzene	Xylenes		
C-2	85	ND	ND	ND	ND	ND	
C-2	90	ND	ND	ND	ND	ND	
C-2	95	ND	ND	ND	ND	ND	
C-2	100	ND	ND	ND	ND	ND	
C-2	105	ND	ND	ND	ND	ND	
C-2	110	ND	ND	ND	ND	ND	
C-2	115	ND	ND	ND	ND	ND	
C-2	120	ND	ND	ND	ND	ND	
C-2	125	ND	ND	ND	ND	ND	
C-2	130	ND	ND	ND	ND	ND	
C-3	50	ND	ND	ND	ND	ND	
C-3	55	ND	ND	ND	ND	ND	
C-3	60	ND	ND	ND	ND	ND	
C-3	65	ND	ND	ND	ND	ND	
C-3	70	ND	ND	ND	ND	ND	
C-3	75	ND	ND	ND	ND	ND	
C-3	80	ND	ND	ND	ND	ND	
C-3	85	ND	ND	ND	ND	ND	
C-3	90	ND	ND	ND	ND	ND	
C-3	95	ND	ND	ND	ND	ND	
C-4	5	ND	ND	ND	ND	ND	

**NOTES:**

mg/kg = Milligrams per kilogram  
 µg/kg = Micrograms per kilogram  
 ND = Not detected above laboratory detection limits  
 (0.001 mg/kg for U.S. EPA Methods 8020 and 8010  
 and 1 mg/kg for U.S. EPA Method 418.1)  
 TRPH = Total recoverable petroleum hydrocarbons  
 NA = Not analyzed  
 DUP = Duplicate sample for U.S. EPA Method 8010 only  
 (a) = All other analytes ND

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 Project 70-4157-01  
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TABLE 4  
KLEINFELDER CHEMICAL ANALYSES OF SOIL SAMPLES  
11800 Sherman Way  
North Hollywood, California  
Project 70-4157-01  
Sampled December 28 through 30, 1992

Boring Number	Approximate Vertical Depth (feet)	U.S. EPA Method 8020				U.S. EPA Method 418.1 TRPH (mg/kg)	U.S. EPA Method 8010 <u>Halogenated Volatile Organic Compounds</u> 1,1,1-Trichloroethane (mg/kg)(*)
		<u>Aromatic Volatile Organic Compounds (mg/kg)</u>					
		Benzene	Toluene	Ethylbenzene	Xylenes		
C-6	25	ND	ND	ND	ND	ND	
C-6	30	ND	ND	ND	ND	ND	
C-6	35	ND	ND	ND	ND	ND	
C-6	40	ND	ND	ND	ND	ND	
C-7	1	ND	ND	ND	ND	ND	
C-7	5	ND	ND	ND	ND	ND	
C-7	10	ND	ND	ND	ND	ND	
C-7	15	ND	ND	ND	ND	ND	
C-8	1	ND	ND	ND	ND	ND	
C-8	10	ND	ND	ND	ND	ND	
C-8	15	ND	ND	ND	ND	ND	

NOTES:

mg/kg = Milligrams per kilogram  
 µg/kg = Micrograms per kilogram  
 ND = Not detected above laboratory detection limits  
 (0.001 mg/kg for U.S. EPA Methods 8020 and 8010  
 and 1 mg/kg for U.S. EPA Method 418.1)  
 TRPH = Total recoverable petroleum hydrocarbons  
 NA = Not analyzed  
 DUP = Duplicate sample for U.S. EPA Method 8010 only  
 (a) = All other analytes ND

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 Project 70-4157-01  
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**APPENDIX A**  
**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**  
**CORRESPONDENCE**



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—  
LOS ANGELES REGION21 CENTRE PLAZA DRIVE  
CANTERBURY PARK, CA 91754-2134  
213/ 244-7300

October 31, 1991

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED  
Claim No. P 445 020 050Mr. Irving Berken  
Mr. Ralph Woodhouse  
c/o Mr. Garfield Bolt**FX-6 Personal Privacy**WELL INVESTIGATION PROGRAM - SUPPLEMENTAL SUBSURFACE SOILS  
INVESTIGATION (FILE NO. 111.0728)

We are in receipt of the Phase II Subsurface Investigation Report, dated February 5, 1991, prepared by GeoSyntec Consultants for Mercury Aerospace Fasteners. This subsurface soils investigation was completed at your property located at 11800 Sherman Way, North Hollywood, California.

In our letter dated April 6, 1990 (copy enclosed), you were directed to share responsibility for the required subsurface soils investigation with Mercury Aerospace Fasteners. We understand that Mercury Aerospace Fasteners has borne the entire cost of conducting both the initial and supplemental subsurface soils investigation required on-site.

The initial subsurface soils investigation has identified tetrachloroethylene (PCE), trichloroethylene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), benzene, toluene, ethyl benzene, and xylene in shallow soils adjacent to the chemical/waste drum storage areas.

The supplemental subsurface soils investigation has identified petroleum-based hydrocarbons up to 880 mg/kg at a depth of 55 feet below ground surface (the maximum depth of the soil test borings completed on-site), and 1,1,1-TCA at 6 µg/kg at a depth of 55 feet below ground surface.

We understand that you have owned this property since approximately 1976, when the existing building was constructed, and have also operated an aerospace manufacturing business at this location from approximately 1976 through 1982.

Pursuant to Section 13267(b) of the California Water code, you are directed to submit a technical report containing the following information:

Mr. Irving Berken  
Mr. Ralph Woodhouse  
Page 2

1. Submit to this Regional Board a complete chronology of prior owners and occupants of your property, including names and addresses of occupant(s), dates of occupancy, type of business, and chemical usage.
2. Provide three copies of all previous environmental reports, site assessments, and workplans, including any soils testing, environmental audits, and any groundwater monitoring.
3. In order to fully evaluate subsurface conditions on-site, all point sources which could contribute to soil and/or groundwater pollution must be evaluated. You must conduct a comprehensive facility historical audit for the period that you owned and/or occupied the subject property, and prepare a report summarizing past and present parts cleaning operations, underground and above-ground tank operations, and identifying areas used on-site for barrel storage and handling activities, as well as chemical processing and treatment facilities. Emphasis should be placed on depicting areas and their identified uses. A site map, to scale, showing the location of areas of concern as outlined in this letter is required. This information will be reviewed, and a determination made whether additional subsurface investigation will be required. The following specific information must be included:

A. Sumps and Clarifiers

Submit a copy of any previous sludge analysis completed, together with effluent samples for the discharge to the sanitary sewer, for the past year. Also provide the dates of installations, as-built construction diagrams, and the locations of sumps and clarifiers on the facility site map.

B. Wastewater Collection/Discharge System

Submit wastewater collection/treatment/discharge system pipeline diagrams for your entire facility's operations.

C. Above-ground Tanks

Submit a complete above-ground tank inventory, including size, location, chemical storage history, dates of installation, dates of use, the results of any tank integrity testing results, and reports containing results of any soil sampling completed.



D. Underground Tanks

Please submit the following information regarding any underground storage tanks operated on-site in the past: size, location, date of installation, date of removal, chemical storage history, the results of any tank integrity testing, and any reports containing results of any soil sampling completed.

E. Above-ground Chemical Storage Areas

Submit to this Board the location(s), chemicals stored, and dates of use for each above-ground chemical storage area, including waste chemicals. Include former chemical/waste storage areas.

F. Parts-Cleaning

Submit information regarding any parts cleaning operations, including solvent sinks, steam cleaning operations, and degreasers. Include location(s), dates of use, chemicals used, capacity, and quantities of chemicals used.

G. Private Sewage Disposal Systems

Provide the following information regarding any private sewage disposal system (septic tank/cesspool/leachfield) previously operated on-site:

1. Location.
2. Type of system(s) operated.
3. Materials of construction.
4. Size and capacity of the unit(s).
5. Types and quantities of wastes discharged.
6. Areal extent of any associated disposal fields.
7. Number and locations of connections to the system.
8. Results of any analytical testing required for operations and maintenance.
9. Date of installation of the disposal system.


Mr. Irving Berken  
Mr. Ralph Woodhouse  
Page 4

- H. Include on the facility site map the site surface run-off drainage pattern, and the location of the storm drain to which the surface rainwater run-off flows.

In order to further determine the vertical and lateral extent of these contaminants, as well as any potential impacts from historical operations on-site, you will be required to submit to this Regional Board a Work Plan for Supplementary Subsurface Soils Investigation. However, we would like to review the above information prior to making a determination regarding the scope and nature of the subsurface investigation required at this site.

Our review of Los Angeles County Forester and Fire Warden (formerly Department of Health Services) records indicates that your previous tenant, Microdot, Inc., was named in an enforcement action in 1984, for discharge of hazardous waste (nitric acid, copper, and waste oils) to the ground at properties directly adjacent to the subject site. Based on historical use of solvents on-site, and solvents identified in soils in areas where waste oils have been stored on-site, any future soils testing of the areas involved in the 1984 enforcement action must include testing for volatile organic compounds. These areas will be included in our determination of the scope and nature of the subsurface investigation required at this site.

Your technical report, containing the above items, is due to this Regional Board by November 30, 1991. Please contact me at (213) 266-7546, or Ann Zaskodna at (213) 266-7585, if you have any questions regarding this matter.

  
DAVID A. BACHAROWSKI  
Environmental Specialist IV

DAB:lm

cc: Mr. Chris Stubbs, U.S. EPA Region IX  
Mr. Bill Jones, Los Angeles County Forester and Fire Warden  
Mr. Bruce Wojcik, Los Angeles County Forester and Fire Warden  
Mr. Jerome Flament, Mercury Aerospace Fasteners

Enclosure

## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—

## LOS ANGELES REGION

101 CENTRE PLAZA DRIVE  
MONTEREY PARK, CA 91754-2156  
(213) 266-7500



August 4, 1992

Mr. Irving Berken

**FX-6 Personal Privacy**

Mr. Ralph Woodhouse

**FX-6 Personal Privacy**

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED  
Claim No. P 577 359 533

Claim No. P 577 359 534

Mr. Rubin Guerra  
Microdot Aerospace Fastening Systems  
800 South State College Boulevard  
Fullerton, California 92631

Claim No. P 577 359 535

WELL INVESTIGATION PROGRAM-SUPPLEMENTAL SUBSURFACE INVESTIGATION  
11800 SHERMAN WAY, NORTH HOLLYWOOD, CALIFORNIA (FILE NO. 111.0728)

We are in receipt of the site audit information, dated April 10, 1992, provided by Mr. James R. MacAyeal of Mayer, Brown & Platt, representing Microdot Aerospace Fastening Systems, former operator at the subject site. We have reviewed and evaluated the site audit information and results of "Phase II Subsurface Soils Investigation Report" dated February 5, 1991, in conjunction with our letter dated October 31, 1991, containing a review and evaluation of subsurface investigation completed at the subject site. On July 16, 1992, a meeting was held with Mr. Berken and Mr. Woodhouse property owners, Mr. Waller of Pillsbury, Madison & Sutro and Regional Board staff to discuss the scope and nature of a supplemental subsurface investigation required at this site. Microdot Aerospace Fastening Systems was invited to this meeting but failed to attend.

The supplemental subsurface soils investigation must determine the vertical and lateral extent of contamination at point source areas previously identified and additional point sources areas identified through review and evaluation of historic site audit information. These areas include at a minimum the chemical/waste storage areas, the former vapor degreaser operation, and the hazardous waste discharge area identified by the Los Angeles County, Department of Health Services when Microdot Aerospace Fastening Systems operated the site. You are hereby directed to submit a Workplan for conducting a supplemental subsurface soils investigation to evaluate the areas identified above. Your Workplan must address all requirements included in the enclosed "Workplan Requirement for Supplementary Engineering/Geologic Subsurface Investigation (Well Investigation Program)" and the requirements listed below:



Mr. Irving Berken  
Mr. Ralph Woodhouse  
Mr. Rubin Guerra  
Page 2

1. Due to the number of point sources, the extent of soil contaminants identified, and the potential for other non-point and point source areas that have not been adequately identified or evaluated, we require that a soil gas investigation be implemented across the site prior to completing any soil test boring. This will allow for a more thorough and complete evaluation of historic site operations, potential vapor phase transport of contaminants, identification of sites for soil borings and reduce the total number of soil test borings that may be required. To assist you in developing your soil gas workplan, we have attached this Regional Board's "Workplan Requirements for Active Soil Gas Investigation", "Soil Gas Guidelines for Data Package-Initial Demonstration of Laboratory Capability" and "List of Twenty Two (22) Primary Target Compounds (Chlorinated Volatile Organics and Aromatic Hydrocarbons)".
2. A sufficient number of intermediate soil test borings must be completed to a minimum depth of eighty (80) feet below the ground surface at previous test boring locations B-1, B-2, and B-3, completed to evaluate chemical/waste storage areas. Soil samples for laboratory analysis must be obtained at 5 foot intervals, starting from fifty feet below land surface.
3. A supplemental soil test boring must be completed to a minimum depth of forty feet (40) below ground surface at the previous location of soil test boring B-4 completed to evaluate the chemical/waste storage area. Soil samples for laboratory analysis must be obtained at 5 foot intervals starting from ten (10) feet below land surface.
4. A minimum of two (2) shallow soil test borings must be completed to a depth of fifteen (15) feet below land surface at the former vapor degreaser location. Soil samples for laboratory analysis must be obtained at 1 foot, 5 feet, 10 and 15 feet below land surface.
5. A sufficient number of soil test boring must be completed to a minimum depth of forty (40) feet below land surface to evaluate the illegal hazardous waste discharge area, located to the south and west of the loading dock area when the site was operated by Microdot Aerospace Fastening Systems. Soil samples for laboratory analysis must be obtained at 5 foot intervals, starting from one (1) foot below land surface.
6. All soil samples must be analyzed for petroleum hydrocarbons by EPA Method 418.1, for chlorinated volatile organics and

Mr. Irving Berken  
Mr. Ralph Woodhouse  
Mr. Rubin Guerra  
Page 3


aromatic hydrocarbons by EPA Method 8010 and EPA Method 8020, respectively.

7. Groundwater monitoring wells are not required during this phase of subsurface investigation.
8. A followup site inspection will be scheduled with you and your consultant subsequent to receiving the workplan for conducting subsurface investigations.

Four copies of your Supplemental Subsurface Soil Investigation Workplan, meeting the attached requirements, with the modifications outline above, are due to this Regional Board by August 30, 1992.

Please do not commence any work on-site until your workplan has been reviewed and approved by this Regional Board.

If you have any questions concerning this matter, please contact Mr. David Bacharowski at (213) 266-7546 or Ms. Ann Zaszkodna at (213) 266-7585.

  
ROY R. SAKAIDA  
Senior Water Resources  
Control Engineer

cc: Mr. Chris Stubbs, U.S. EPA Region IX  
Mr. William Waller, Pillsbury, Madison & Sutro  
Mr. James R. MacAyeal, Mayer, Brown & Platt  
Mr. Jerome Flament, Mercury Aerospace Fasteners  
Mr. Bruce Wojcik, Los Angeles County Forester and Fire Warden  
Mr. Carl Tripp, Los Angeles County, Industrial Waste  
Department

# CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD— LOS ANGELES REGION

101 CENTRE PLAZA DRIVE  
MONTEREY PARK, CA 91754-2156  
(213) 266-7300



October 23, 1992

Mr. Irving Berken

**FX-6 Personal Privacy**

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED  
Claim No. P 997 019 367

Mr. Ralph Woodhouse

**FX-6 Personal Privacy**

Claim No. P 997 019 386

WELL INVESTIGATION PROGRAM-SUPPLEMENTAL SUBSURFACE INVESTIGATION  
11800 SHERMAN WAY, NORTH HOLLYWOOD, CALIFORNIA (FILE NO. 111.0728)

We are receipt of your consultant's, Kleinfelder Inc., Workplan for Supplemental Subsurface Soils Assessment dated September 1992, and received on September 15, 1992. We have reviewed and evaluated the subject workplan which includes the implementation of a limited soil gas investigation and the drilling of soil test borings to evaluate chemical/waste storage areas, former degreaser operation and assessment of the illegal hazardous waste discharge area identified from historic site operations.

## I. SOIL GAS INVESTIGATION

1. We have reviewed the soil gas investigation workplan and find that it does not provide the minimum level of detail needed to evaluate your plan.
2. As proposed, the soil gas investigation will be completed on-site prior to the drilling of any soil test borings. A total of 18 soil gas sampling points at only outside areas are included in the investigation. Your proposal did not include any soil gas sampling points at the former degreaser area, and includes only one sampling point at the hazardous waste disposal area. At a minimum two soil gas sampling locations must be completed at the former degreaser area, two additional sampling points at the hazardous waste disposal area, and three additional soil gas sample points using 20-30 foot grid at the former machine shop operation areas located inside the building. To assist you in developing an adequate soil gas investigation plan, we have enclosed a copy of our Workplan Requirements for Active Soil Gas Investigation, Soil Gas Guidelines for Data Package, Initial Demonstration of Laboratory Capability and List of Twenty Two (22) Primary Target Compounds (Chlorinated Volatile Organics and Aromatic Hydrocarbons) which should be followed.

44-8 brand fax transmittal memo 7671		# of pages >
Robert Bucola	A 20526	Kleinfelder
Kleinfelder	CNE CB	
714 396-1321	713 266-7585	713 266-7660

3. The soil gas testing company or contractor to be used on-site must be identified in your workplan. A certified/ registered (SDOHS-ELAP) mobile testing laboratory can be used for analysis of soil gas samples for this project, but you must provide complete details on how representative soil gas samples will be obtained and handled prior to analytical testing. To assist you in selecting a soil gas consultant for completing the active soil gas investigation, we have enclosed a copy of a Partial List of Soil Gas Consultants that have provided complete data demonstration package to this Regional Board. Other soil gas consultants not on this list can also be used however, prior to implementing any work on-site they must comply with the data demonstration package requirements.

## II. SOIL TEST BORING PROGRAM

Eight (8) soil test borings are proposed to evaluate the chemical/waste storage areas, former degreaser operation and illegal hazardous waste discharge area. After completion and evaluation of the soil gas survey data a determination will be made regarding the need for any additional soil test borings. We have reviewed and evaluated the soil test boring program and have no objection to your implementing it provided that all work is completed as specified in your proposal and complies with the "Workplan Requirements for Supplemental Subsurface Engineering/Geologic Soil Investigation " and that all items identified below are incorporated into your workplan.

1. Prior to commencing any field work activities, the State of California Registered Engineer or Geologist responsible for this project must notify this Regional Board in writing and specify the level of his/her involvement with this project and duration of his/her direct on-site field supervision for drilling, sampling and logging activities.
2. Your proposed soil sampling plan is not consistent with requirements specified in the letter dated August 4, 1992, (copy enclosed) which indicated that soil samples for laboratory analysis must be obtained at five foot intervals starting from fifty (50) feet through eighty (80) feet below ground surface at C-1, C-2, C-3. Soil samples for chemical analysis must be collected from the boring location C-4 from ten (10) feet through forty (40) feet below ground surface at five foot intervals and from the boring locations C-7 and C-8 from the depth 1 foot, 5 feet, 10 and 15 feet below ground surface.

3. We require that the Practical Quantitation Limits (PQL's) for most EPA Method 8010/8020 analyses to be between five to ten  $\mu\text{g/kg}$  for low-level soils testing. The PQL is five to ten times the method detection limit. Method detection limit (MDL) of 0.5 to 1.0  $\mu\text{g/kg}$  must be achieved for selected volatile organics. Constituents detected between the detection limit and the PQL must be reported, but may be reported as trace constituents, as appropriate. The method detection limits must be reported on all laboratory reporting sheets. Method detection limit for EPA Method 8015 (Modified) and 418.1 must approach 50  $\mu\text{g/kg}$  and 2  $\text{mg/kg}$ , respectively, for this project.
4. We require that soil samples be analyzed for volatile organic constituents within seven (7) days whenever possible. The analytical testing laboratory for this project is required to perform analyses of volatile organics (EPA Method 8010, or EPA Method 8020 or EPA Method 8260 prior to analyses of petroleum-based hydrocarbons (EPA Method 418.1), unless separate samples are obtained specifically for these two types of analyses.
5. The laboratory QA/QC report for this project must include, at a minimum, reagent blanks, calibration check standards, matrix spikes and duplicates, total recoverables, spiking concentrations, and laboratory quality control samples. In addition, the laboratory reporting sheets are to include: date sampled, date extracted and method employed (where applicable), date analyzed, and date reported. Gas chromatograms from the reference standards used and from the soil analyses test runs must be submitted with the laboratory QA/QC report, for all testing completed for petroleum-based hydrocarbons by EPA Method 8015 (Modified).

The items listed above regarding soil gas investigation plan and the soil test boring program were discussed in a telephone conversation between Mr. Robert Bucola of Kleinfelder Inc., and Ms. Ann Zaszkodna of this Regional Board staff on October 23, 1992.

Four copies of a revised Soil Gas Investigation Workplan are due to this Regional Board by November 15, 1992.

Please do not commence any work on-site until your revised workplan for soil gas investigation has been reviewed and approved by this Regional Board.

Mr. Irving Berken  
Mr. Ralph Woodhouse

Page 4

If you have any questions concerning this matter, please contact me at (213) 266-7546 or Ms. Ann Zaszko at (213) 266-7585.

*David A. Bacharowski*

DAVID A. BACHAROWSKI  
Environmental Specialist IV

cc: Mr. Chris Stubbs, U.S. EPA Region IX  
Mr. Robert Bucola, Kleinfelder, Inc.  
Mr. William Waller, Pillsbury, Madison & Sutro  
Mr. Jerome Flament, Mercury Aerospace Fasteners  
Mr. Bruce Wojcik, LA County, Forester and Fire Warden  
Mr. Carl Tripp, City of Los Angeles, Industrial Waste  
Department  
Captain Camarena, City of Los Angeles, Fire Department, Fire  
Prevention Bureau  
Mr. Rubin Guerra, Microdot Aerospace Fastening System

DRAFT

## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—

## LOS ANGELES REGION

101 CENTRE PLAZA DRIVE  
MONTEREY PARK, CA 91754-2156  
(213) 266-7300

RECEIVED DEC 11 1992



December 10, 1992

Mr. Irving Berken

**FX-6 Personal Privacy**

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED  
Claim No. P 997 018 720

Mr. Ralph Woodhouse

**FX-6 Personal Privacy**

Claim No. P 997 018 721

WELL INVESTIGATION PROGRAM-SUPPLEMENTAL SUBSURFACE INVESTIGATION  
11800 SHERMAN WAY, NORTH HOLLYWOOD, CALIFORNIA (FILE NO. 111.0728)

We are receipt of your consultant's, Kleinfelder Inc., Revised Workplan for Supplemental Subsurface Soils Assessment dated November 1992. We have reviewed and evaluated the subject workplan and have the following comments:

I. SOIL GAS INVESTIGATION

1. Your Revised Workplan does not indicate that a purge rate volume test will be completed on-site. At a minimum of three probe volumes is required in order to obtain representative soil gas sample for analysis.
2. We have reviewed the Soil Vapor Survey Methodology provided by the Transglobal Environmental Geochemistry in the Appendix B of the Revised Workplan and have the following comments:
  - a. Provide specifications for the gas-tight containers to be used for collection and storage of the additional soil vapor samples.
  - b. Any soil gas samples for chemical analyses to be sent to an off-site analytical testing laboratory must be analyzed within 24 hours from the time of collecting the samples.
3. Based upon the results of the soil gas survey completed on-site an additional soil test borings may be required.
4. Since we are approaching the rainy season, we recommend that a minimum waiting period be observed after any rainy-day event, before commencing or recommencing soil gas sampling and analysis on-site. We acknowledge that evaluating the effects of rainy-day events on soil gas investigation data can be

Mr. Irving Berken  
Mr. Ralph Woodhouse  
Page 2

quite difficult, given the many factors that can directly or indirectly influence the test results.

We have no objection to you commencing the soil gas investigation on-site, provided that all work is completed as specified in your workplan including all conditional requirements specified above and meet all our requirements listed on the enclosed Workplan Requirements for Active Soil Investigation Well Investigation Program (WIP).

## II. SOIL TEST BORING PROGRAM

We have no objection to your implementing the subsurface investigation workplan provided that you comply with the "Workplan Requirements for Supplemental Subsurface Engineering/Geologic Soil Investigation " and that all items identified below are incorporated into your workplan.

1. At a minimum, we require that Mr. Edward J. Trosper, California Registered Geologist be present on-site during drilling, logging, sample collection, and backfilling of the test boring locations C-1 and C-2 to be completed to eighty (80) feet below ground surface.
2. We have no objection to the use of the field screening equipment photoionization detector (PID) for health and safety consideration, provided that calibration equipment is on-site during all drilling and sampling operations.
3. We require that the Practical Quantitation Limits (PQL's) for most EPA Method 8010/8020 analyses to be between five to ten  $\mu\text{g}/\text{kg}$  for low-level soils testing. The PQL is five to ten times the method detection limit. Method detection limit (MDL) of 0.5 to 1.0  $\mu\text{g}/\text{kg}$  must be achieved for selected volatile organics. Constituents detected between the detection limit and the PQL must be reported, but may be reported as trace constituents, as appropriate. The method detection limits must be reported on all laboratory reporting sheets. Method detection limit for EPA Method 418.1 must approach 2  $\text{mg}/\text{kg}$  for this project.
4. The final locations of the soil test borings must be verified on-site the day that drilling commences.

If you have any questions concerning this matter, please contact me at (213) 266-7546 or Ms. Ann Zaszkojna at (213) 266-7585.



Mr. Irving Berken  
Mr. Ralph Woodhouse  
Page 3

Four copies of your final report containing results of the Soil Gas Investigation are due to this Regional Board by February 1, 1993.

  
DAVID A. BACHAROWSKI  
Environmental Specialist IV

cc: Mr. Chris Stubbs, U.S. EPA Region IX  
Mr. Edward J. Trosper, Kleinfelder Inc.  
Mr. William Waller, Pillsbury, Madison & Sutro  
Mr. Rubbin Guerra, Microdot Aerospace Fastening System  
Mr. Jerome Flament, Mercury Aerospace Fasteners  
Mr. Bruce Wojcik, LA County, Forester and Fire Warden  
Mr. Carl Tripp, City of Los Angeles, Industrial Waste  
Department  
Captain Camarena, City of Los Angeles, Fire Department, Fire  
Prevention Bureau

DRAFT

December 18, 1992

Project 70-4157-01

Mr. David A. Bacharowski  
Los Angeles Region  
California Regional Water Quality Control Board  
101 Centre Plaza Drive  
Monterey Park, California 91754-2156

VIA FAX: (213) 266-7600

**SUBJECT: RESPONSE TO DECEMBER 10, 1992 LETTER  
REVISED ASSESSMENT WORKPLAN  
BIRKEN/WOODHOUSE FACILITY  
11800 SHERMAN WAY  
NORTH HOLLYWOOD, CALIFORNIA  
File Number 111.0728**

Dear Mr. Bacharowski:

This letter is in response to your letter dated December 10, 1992, to Mr. Irving Birken and Mr. Ralph Woodhouse regarding several items necessary to obtain final approval of Kleinfelder's Revised Assessment Workplan and initiate assessment activities at the Birken/Woodhouse facility located at 11800 Sherman Way, North Hollywood, California (site). For your ease, your statements are included and italicized. The response to your statements is in common type.

**I. SOIL GAS INVESTIGATION**

1. *Your revised Workplan does not indicate that a purge rate volume test will be completed on-site. At a minimum of three probe volumes is required in order to obtain a representative soil gas sample for analysis.*

After a telephone conversation between you and Kleinfelder's subcontractor, Transglobal Environmental Geochemistry (TEG) on December 18, 1992, to clarify this issue, TEG will not be conducting a purge rate volume test. TEG uses low dead-volume equipment that does not require a variable pump volume test such as this. The low dead-volume equipment uses the equivalent of 5 purge volumes to obtain a representative soil gas sample.

2. *We have reviewed the Soil Vapor Survey Methodology provided by the Transglobal Environmental Geochemistry in the Appendix B of the Revised Workplan and have the following comments:*

- a. *Provide specifications for the gas-tight containers to be used for collection and storage of the additional soil vapor samples.*

Each soil vapor sample will be collected with gas-tight 100 milliliter syringes and taken directly to the on-site mobile laboratory for immediate chemical analyses.

- b. *Any soil gas samples for chemical analyses to be sent to an off-site analytical testing laboratory must be analyzed within 24 hours from the time of collecting the samples.*

Each soil gas sample collected during the soil gas investigation will be chemically analyzed on-site.

3. *Based upon the results of the soil gas survey completed on-site, an additional soil test boring may be required.*

Kleinfelder understands that based upon the results of the soil gas survey, additional soil test borings may be required at the site.

4. *Since we are approaching the rainy season, we recommend that a minimum waiting period be observed after any rainy-day event, before commencing or recommencing soil gas sampling and analysis on-site. We acknowledge that evaluating the effects of rainy-day events on soil gas investigation data can be quite difficult, given the many factors that can directly or indirectly influence the test results.*

Kleinfelder will wait a minimum period of one day after a rain event before commencing or recommencing soil gas sampling at the site.

## II. SOIL TEST BORING PROGRAM

*We have no objection to your implementing the subsurface investigation workplan provided that you comply with the "Workplan Requirements for Supplemental Subsurface Engineering/Geologic Soil Investigation" and that all items identified below are incorporated into your workplan.*

1. *At a minimum, we require that Mr. Edward J. Troster, California Registered Geologist be present on-site during drilling, logging, sample collection, and backfilling of the test boring locations C-1 and C-2 to be completed to eighty (80) feet below ground surface.*

At a minimum, Mr. Edward J. Troster, California Registered Geologist 4586, will be present on-site during drilling, logging, sample collection, and backfilling of the test boring locations C-1 and C-2 that will be completed to a minimum total depth of eighty feet below ground surface.

2. *We have no objection to the use of the field screening equipment photoionization detector (PID) for health and safety considerations, provided that calibration equipment is on-site during all drilling and sampling operations.*

The PID detector that will be utilized for field screening will be calibrated daily before each day's drilling and sampling operations and will remain on-site during operations.



3. *We require that the Practical Quantitation Limits (PQL's) for most EPA Method 8010/8020 analyses to be between five to ten  $\mu\text{g/kg}$  for low-level soils testing. The PQL is five to ten times the method detection limit. Method detection limit (MDL) of 0.5 to 1.0  $\mu\text{g/kg}$  must be achieved for selected volatile organics. Constituents detected between the detection limit and the PQL must be reported, but may be reported as trace constituents, as appropriate. The method detection limits must be reported on all laboratory reporting sheets. Method detection limit for EPA Method 418.1 must approach 2 mg/kg for this project.*

The PQL's used for EPA Method 8010/8020 analyses will be 10  $\mu\text{g/mg}$  for this project. The method detection limit used for EPA Method 418.1 will approach 2 mg/kg for this project.

4. *The final locations of the soil test borings must be verified on-site the day that drilling commences.*

The final locations of the soil test borings will be verified on-site on the day drilling commences, but prior to the drilling of the soil test borings.

Kleinfelder understands that during phone conversations with Mr. David Bacharowski and Ann Zaszkda of the RWQCB, the RWQCB requested that 40 feet of soil samples (taken at 5-foot intervals) with analyte concentrations below laboratory PQL's below the deepest reported concentration levels are required in borings C-1 through C-6. Kleinfelder will comply with this request.

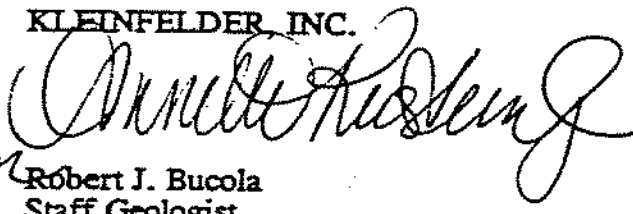
DRAFT



Thank you for clarifying Kleinfelder's scope of work. Please contact the undersigned immediately if you have any further points of clarification to this scope. In all future correspondence, Kleinfelder requests that the RWQCB make changes in scope in writing so as to avoid potential misunderstandings.

Sincerely,

KLEINFELDER, INC.

*for*   
Robert J. Bucola  
Staff Geologist

*11/8/16 EJT for*  
Edward J. Trosper, R.G. 4586, C.E.G. 1526  
Project Manager

RB:EJT:leh

cc: Mr. Irving Birken  
Mr. Ralph Woodhouse  
Mr. William Waller, Pillsbury, Madison & Sutro  
Mr. Rubbin Guerra, Micodot Aerospace Fastening System  
Mr. Jerome Flament, Mercury Aerospace Fasteners







**APPENDIX B**  
**TEG SOIL VAPOR SURVEY REPORT**





**TRANSGLOBAL  
ENVIRONMENTAL  
GEOCHEMISTRY, INC.**

January 7, 1993

Mr. Ed Trosper  
Kleinfelder  
1370 Valley Vista Drive  
Suite 150  
Diamond Bar, CA 91765

SUBJECT: DATA REPORT - SOIL VAPOR SURVEY - 11800 SHERMAN WAY,  
NORTH HOLLYWOOD - KLEINFELDER PROJECT #70-415701

TEG Project #921221CM

Mr. Trosper:

Please find enclosed a data report for the soil vapor survey conducted by TEG at 11800 Sherman Way in North Hollywood, CA for Kleinfelder. Soil vapor was collected by TEG and analyzed on-site in TEG's DOHS certified mobile laboratory (CERT #1667). TEG personnel analyzed soil vapor from 28 points for:

- volatile aromatic hydrocarbons (BTEX) by EPA 8020.
- volatile halogenated hydrocarbons by EPA Method 8010.

The results of the analyses are summarized in the attached tables. Color site location maps were given to Kleinfelder personnel on site, after completion of soil vapor survey.

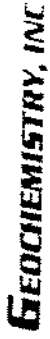
Also enclosed are brief descriptions of TEG's soil vapor procedure and standard chromatograms of the analyses performed on the samples.

TEG appreciates the opportunity to provide analytical services to Kleinfelder for this project. If you have any questions relating to these data or report, please do not hesitate to contact us.

Sincerely,

Dr. Blayne Hartman





11800 SHERMAN WAY, NORTH HOLLYWOOD

SOIL VAPOR DATA IN MICROGRAMS/LITER OF VAPOR (ug/l-vapor)

BOIL VAPOR DATA IN MICROGRAMS/LITER OF VAPOR (ug/l-vapor)

	BLANK	SV-1	SV-IDUP	SV-2	SV-3	SV-4	SV-5	SV-6	SV-7	SV-8	SV-9	SV-10	SV-11	SV-12	SV-IDUP
DATE	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92
ANALYSIS TIME	9:10	9:29	9:49	10:09	10:29	10:49	11:11	11:41	12:01	12:21	12:39	13:00	13:24	13:45	14:09
SAMPLING DEPTH (feet)	--	5	5	5	5	5	5	5	5	5	5	5	5	5	5
VOLUME WITHDRAWN (cc)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
PROM 12	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
PAKON 11	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
METHYLENE CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 TR DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 CIS DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1 TRICHLORO ETHANE	nd	nd	nd	nd	nd	1.3	0.8	nd	1.3	6.5	4.9	4.8	14.2	12.3	13.1
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,3 DICHLORO PROPANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BROMO DICHLORO METHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS DICHLORO PROPENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS DICHLORO PROPENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2 TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	4.3	2.9	3.2	0.9	1.1	1.2	nd	0.9	3.5	nd	4.2	1.5	nd	nd
ETHYLBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.8	nd	0.9	nd	nd	nd
TOTAL XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd	5.1	nd	4.0	nd	nd	nd

ND INDICATES NOT DETECTED AT DETECTION LIMIT OF 0.5 UG/L-VAPOR FOR EACH COMPOUND

DATA MEASURED ON-FITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1667)

ANALYSES PERFORMED BY: MR. SCOTT PIERKE

DATA REVIEWED BY: DR. BLAYNE HARTMAN

Blayne Harbman  
1-6-93



TEG Project #772211

SOIL VAPOR DATA IN MICROGRAMS/LITER OF VAPOR (ug/L-vapor)

TRANSGLOBAL  
ENVIRONMENTAL  
GEOCHEMISTRY, INC.

KLINGFELDER PROJECT #70-4157-01  
11800 SHERMAN WAY, NORTH HOLLYWOOD

	SV-13	SV-14	SV-15	SV-16	SV-17	SV-18	BLANK	SV-19	SV-20	SV-21	SV-22	SV-23	SV-24	SV-25 SV-25DUP
DATE	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92	12/21/92
ANALYSIS TIME	14:44	15:12	15:32	15:58	16:19	16:43	09:48	10:05	10:27	9:15	12:22	10:49	11:10	11:38 11:50
SAMPLING DEPTH (feet)	5	5	5	5	5	5	--	4	3.5	5	5	5	3.5	5
VOLUME WITHDRAWN (cc)	60	60	60	60	60	60	60	60	60	60	60	60	60	60
PERON 12	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
PERON 11	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLORO ETHENE	nd	nd	nd	nd	1.7	nd	nd	nd	nd	nd	nd	nd	nd	nd
METHYLENE CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 TR DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 CIS DICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1 TRICHLORO ETHANE	32.4	33.3	15.9	5.5	0.7	5.3	nd	5.5	12.7	1.5	0.6	2.1	14.4	6.6
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 DICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	3.5	nd	nd	nd	nd	nd
1,2 DICHLORO PROPANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BROMO DICHLORO METHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS DICHLORO PROPENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS DICHLORO PROPENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2 TRICHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHENE	nd	nd	nd	nd	nd	nd	nd	nd	0.8	nd	nd	nd	nd	nd
CHLOROBENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLORO ETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	0.6	nd	2.1	0.7	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLENE	nd	nd	nd	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOTAL XYLENES	nd	nd	nd	3.9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

ND INDICATES NOT DETECTED AT DETECTION LIMIT OF 0.5 UG/L-VAPOR FOR EACH COMPOUND

DATA MEASURED ON-SITE IN TEG'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1657)

ANALYSES PERFORMED BY: MR. SCOTT PIEPER

DATA REVIEWED BY: DR. BLAYNE HARTMAN

*Blayne Hartman*  
12-92



CLIENT: KLEINFELDER

SITE: 11800 SHERMAN WAY, NORTH HOLLYWOOD

TEQ Project # 921221CM

RESPONSE FACTORS IN AREA COUNTS

3 PT. AVE. HP	CONT. CAL.	%	QC CHECK	%	CONT. CAL.	%	QC CHECK	%	QC CHECK	%
DATE	12/21/92		12/21/92		12/21/92		12/22/92		12/22/92	
ANALYSIS TIME	08:11		08:40		17:10		08:19		22:49	
METHYLENE CHLORIDE	1584	1402	98.5%	1357	85.7%	1714	109.5%	1498	94.6%	1585
1,1 TR DICHLORO ETHENE	20.1	21.8	108.5%	21.5	107.0%	19	94.5%	19	96.0%	17
1,1 DICHLORO ETHANE	1096	1166	106.4%	1126	102.7%	1361	124.2%	1057	96.4%	1186
CHLOROFORM	1363	1564	114.7%	1495	109.7%	1675	122.9%	1411	103.5%	1575
1,1,1 TRICHLORO ETHANE	1227	1372	111.8%	1333	108.6%	1466	119.5%	1265	103.1%	1351
CARBON TETRACHLORIDE	1355	1560	115.1%	1559	115.1%	1600	118.1%	1379	101.8%	1518
TRICHLORO ETHENE	16.9	16.9	99.9%	16.7	98.8%	14.8	87.6%	15	87.0%	15
TETRACHLORO ETHENE	13.5	14.0	103.9%	14.1	104.4%	12.7	94.1%	16	116.3%	14
BENZENE	30	28.6	95.3%	31.2	104.0%	25.7	85.8%	25	84.3%	27
TOLUENE	29.7	29.6	99.7%	29.3	98.7%	27.4	92.4%	26	88.6%	27
ETHYLENE	25.1	23.9	95.2%	25.8	102.8%	21.4	85.3%	23	90.8%	23
TOTAL XYLENES	86	87.6	101.8%	89.1	103.6%	76.9	89.4%	75	87.5%	84

SAMPLES ANALYZED IN TEQ'S DONG CERTIFIED MOBILE LAB (CERT #1687)

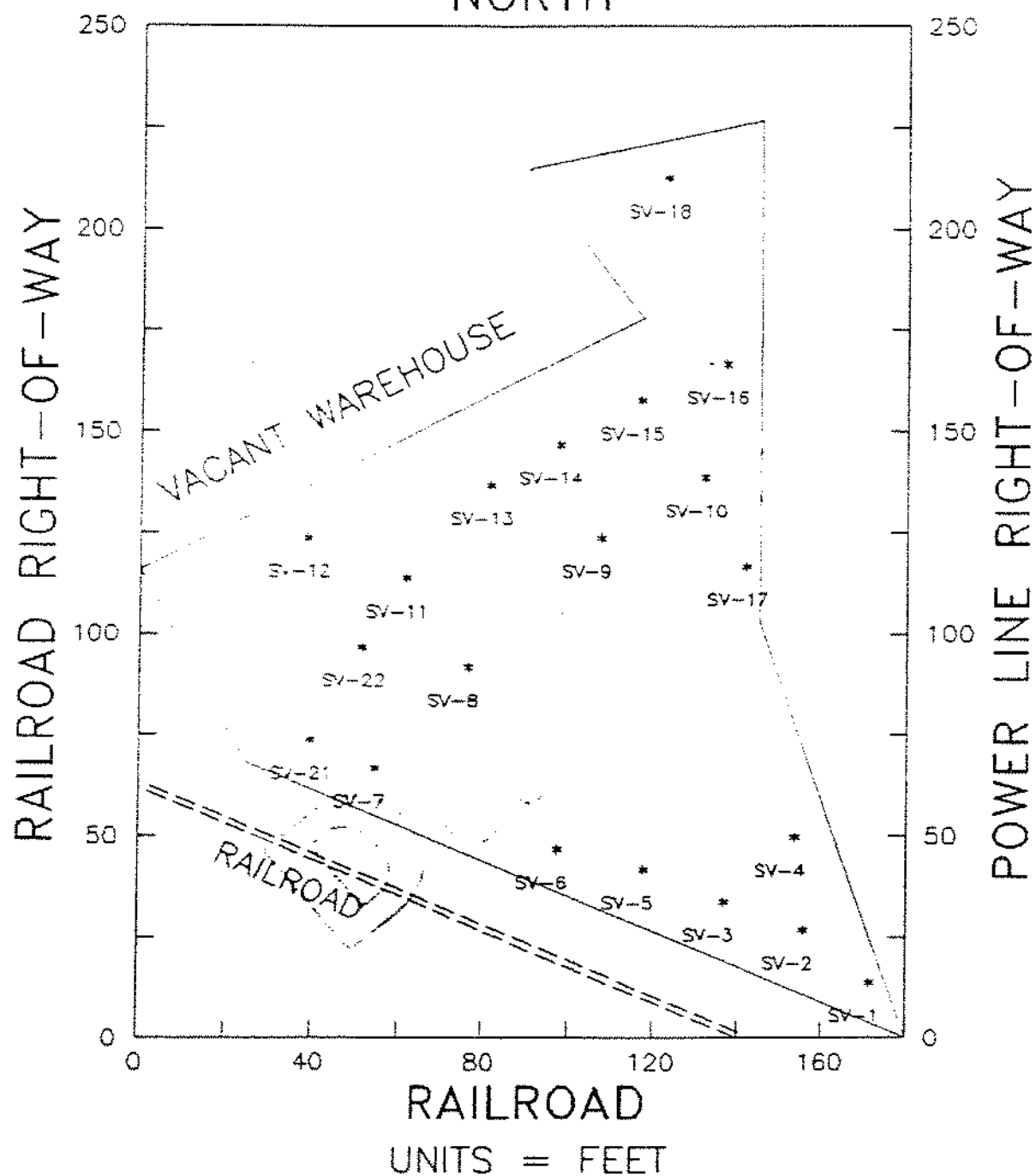
ANALYSIS PERFORMED BY: SCOTT PIEPER

DATA REVIEWED BY: DR. BLAYNE HARTMAN

*Blayne Hartman*  
16-93

# 11800 SHERMAN AVENUE SITE

## SOIL VAPOR SURVEY SAMPLE LOCATIONS NORTH

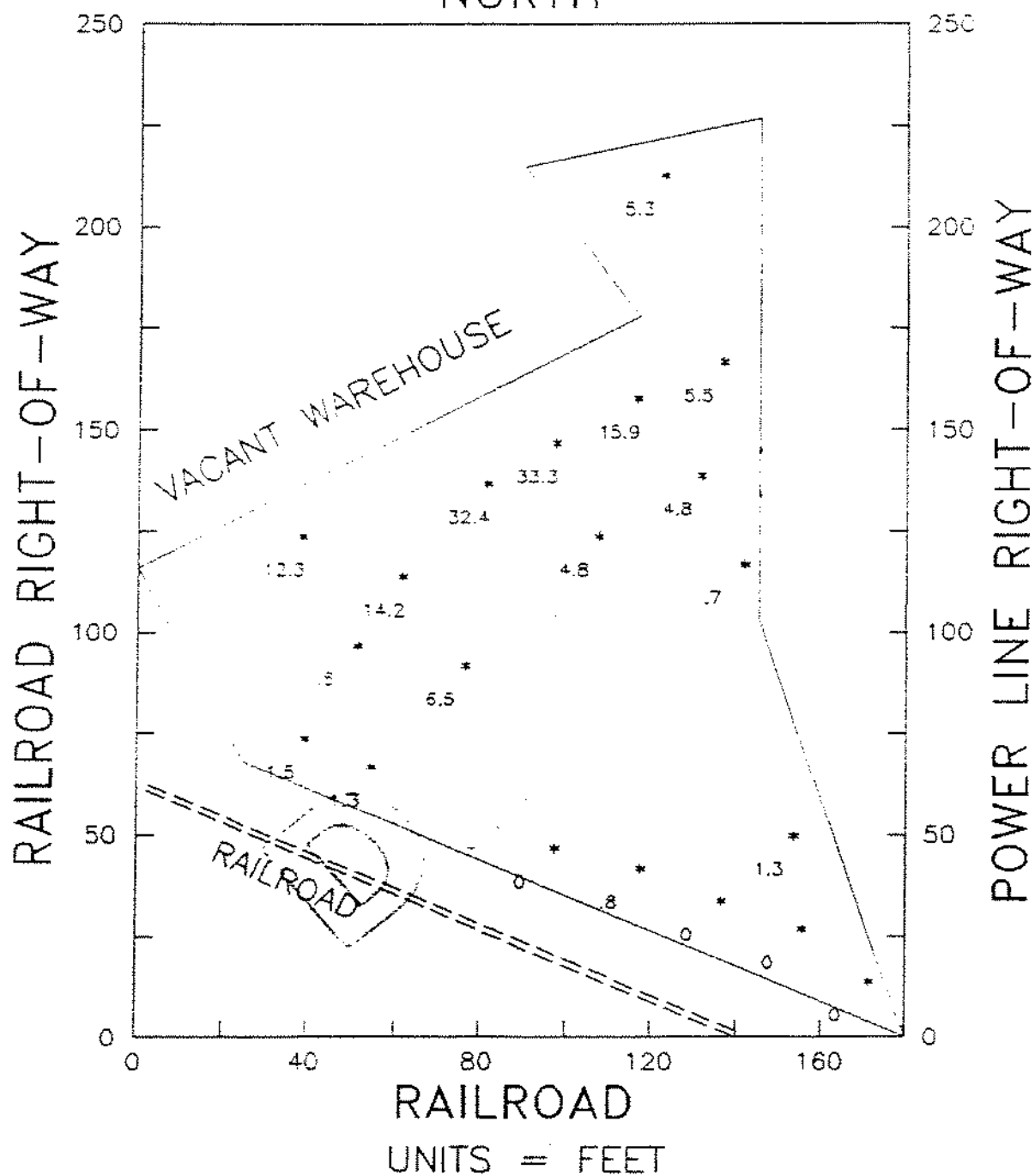


TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY

# 11800 SHERMAN AVENUE SITE

1,1,1 TCA (UG/L - VAPOR)

NORTH

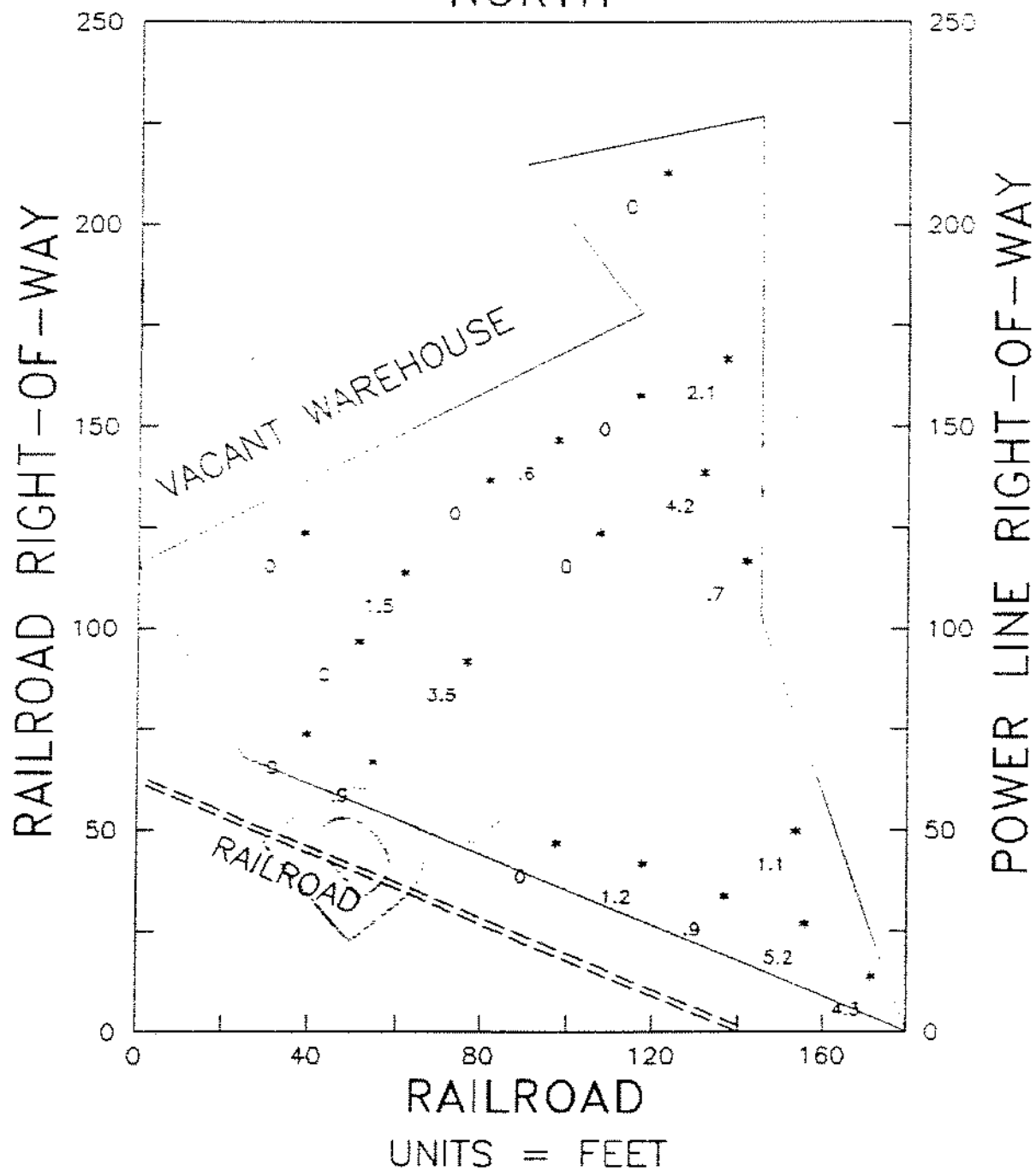


TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY

# 11800 SHERMAN AVENUE SITE

## TOLUENE (UG/L - VAPOR)

### NORTH



TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY



## SOIL VAPOR SURVEY METHODOLOGY

### Probe Construction

TEG's soil vapor probes are constructed of 5/8 inch outer diameter, stainless steel, equipped with a hardened, reverse-threaded steel tip. Nominal lengths are 6 feet although additional lengths may be added. An inert 1/8 inch polypropylene nylaflow tube runs down the center of the probe to sampling ports beneath the tip (refer to the attached figure).

### Probe Insertion

The probe is driven into the ground by either an electric rotary hammer or with TEG's truck-mounted hydraulic/vibrational system. Once inserted to the desired depth, the probe is rotated 3 to 5 turns in a clockwise direction, which opens the tip and exposes the vapor sampling ports. This design prevents clogging of the sampling ports and cross-contamination from soils during insertion.

### Gas Sampling

Soil vapor is withdrawn from the nylaflow tubing using a syringe connected via an on-off valve. The first 40 cc of gas are discarded to flush the dead volume of the probe and fill it with in-situ soil vapor. The next 20 cc of gas are withdrawn in a syringe, plugged, and immediately transferred to the mobile lab for analysis within 5 minutes of collection. Additional soil vapor may be collected and stored in gas-tight containers as desired.

### Flushing & Decontamination Procedures

To minimize the potential for cross-contamination between sites, all probe parts are cleaned of excess dirt and moisture prior to insertion. The nylaflow tubing and sampling ports are flushed with hundreds of cc's of ambient air between samples. If water, dirt, or any material is observed in the tubing, the tubing is replaced with fresh tubing.

### Analysis of Soil Vapor

To eliminate loss of gases during storage, collected gas samples are analyzed immediately after collection in TEG's state certified mobile laboratory. One cc of air is injected into a Shimadzu gas chromatograph equipped with megabore capillary columns and with flame ionization, HNU photoionization detector (10.2 ev lamp), and Hall electrolytic conductivity detectors (Tracor model 1000). These detectors enable on-site analysis for landfill hydrocarbons, petroleum hydrocarbons, volatile aromatics (BTEX), and volatile chlorinated compounds (DCE, TCE, PCE, DCA, TCA, PCA) using EPA approved analytical methodology outlined in methods 8010, 8015, & 8020. Output signals from each detector are processed by HP3393A computing integrators or computer chromatography software and the results entered into a laboratory computer for on-site processing and graphing.

**Transglobal Environmental Geochemistry**

432 N. Cedros Ave., Solana Beach CA 92075 Ph: (619) 793-0401 Fax: (619) 793-0404

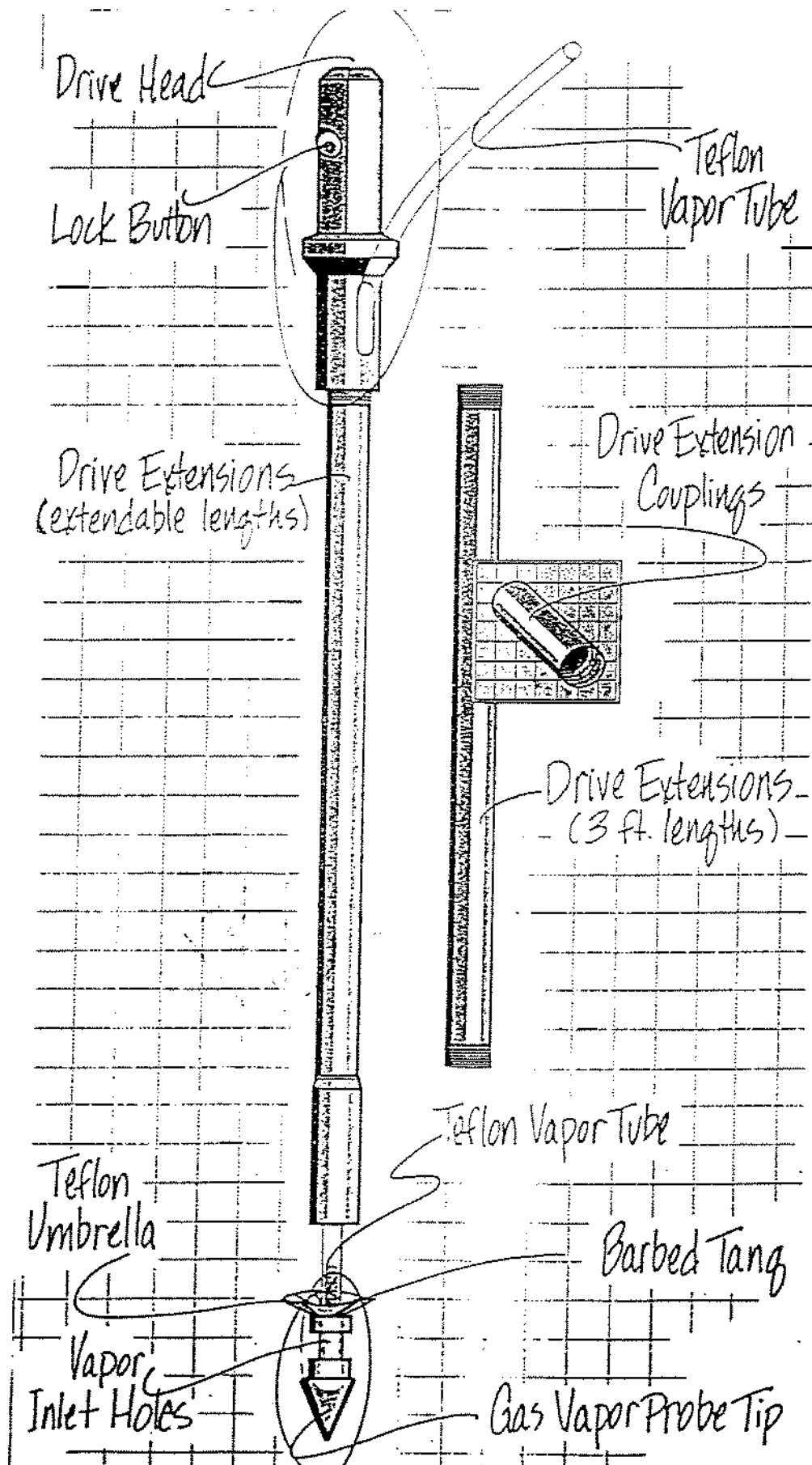


DIAGRAM OF TEG'S SOIL GAS SAMPLING PROBE

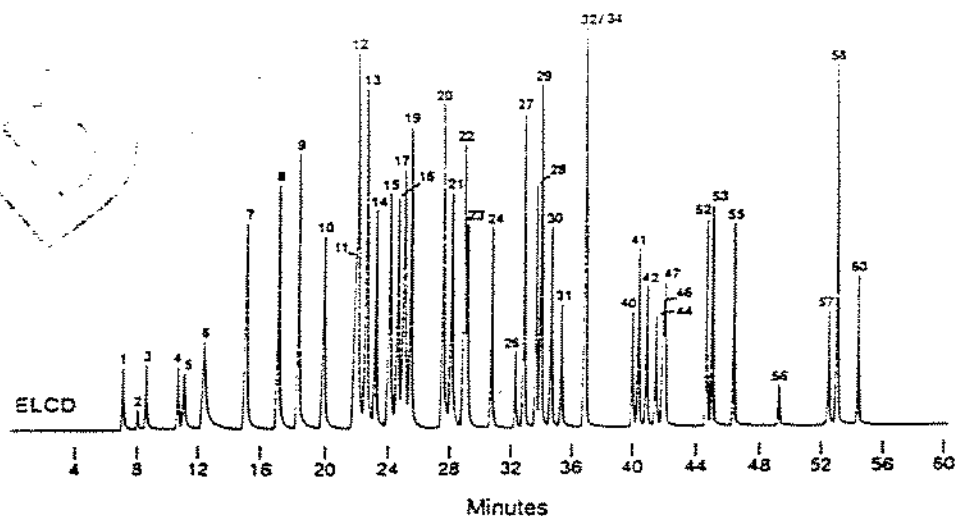
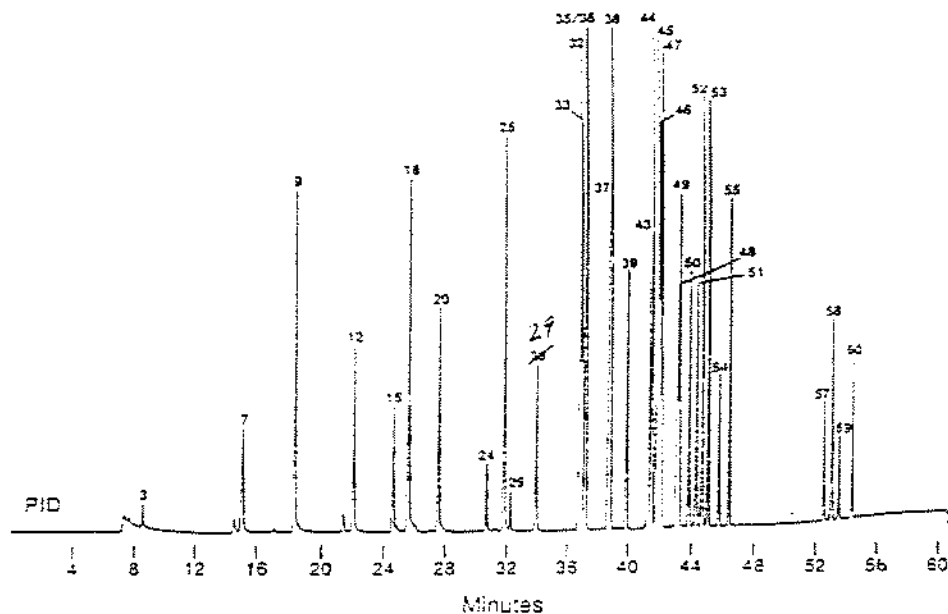




# HALOGENATED & AROMATIC VOLATILE HYDROCARBONS

EPA 601/602 & 8010/8020

1. Dichlorodibromomethane
2. Chloromethane
3. Vinyl chloride
4. Bromomethane
5. Chloroethane
6. Trichlorobromomethane
7. 1,1-Dichloroethane
8. Methylene chloride
9. trans-1,2-Dichloroethane
10. 1,1-Dichloroethane
11. 2,2-Dichloropropane
12. cis-1,2-Dichloroethane
13. Chloroform
14. Bromochloromethane
15. 1,1,1-Trichloroethane
16. 1,1-Dichloropropane
17. Carbon tetrachloride
18. Benzene
19. 1,2-Dichloroethane
20. Trichlorobenzene
21. 1,2-Dichloropropane
22. Bromochloromethane
23. Dibromomethane
24. cis-1,3-Dichloropropene
25. Toluene
26. trans-1,3-Dichloropropene
27. 1,1,2-Trichloroethane
28. 1,2-Dichloroethane
29. Tetrachloroethane
30. Dibromochloromethane
31. 1,2-Dibromomethane
32. Chlorobenzene
33. Ethyl benzene
34. 1,1,1,3-Tetrachloroethane
35. m-Xylene
36. p-Xylene
37. o-Xylene
38. Styrene
39. Isopropyl benzene
40. Bromoform
41. 1,1,2,2-Tetrachloroethane
42. 1,2,3-Trichloropropane
43. n-Propyl benzene
44. Bromobenzene
45. 1,3,5-Trimethylbenzene
46. 2-Chlorotoluene
47. 4-Chlorotoluene
48. tert-Butylbenzene
49. 1,2,4-Trimethylbenzene
50. sec-Butylbenzene
51. p-Isopropyltoluene
52. 1,3-Dichlorobenzene
53. 1,4-Dichlorobenzene
54. n-Butylbenzene
55. 1,2-Dichlorobenzene
56. 1,2-Dibromo-3-chloropropane
57. 1,2,4-Trichlorobenzene
58. Hexachlorobutadiene
59. Naphthalene
60. 1,2,3-Trichlorobenzene





TRANSGLOBAL  
ENVIRONMENTAL  
GEOCHEMISTRY, INC.

# CHAIN-OF-CUSTODY RECORD

CLIENT: KLEINFELDER DATE: 12/21/92 PAGE 1 OF 1

ADDRESS: 1370 Valley Vista Drive, Suite 110, Normal, IL 61754

PHONE: (909) 396-0331 FAX: (909) 396-1324

CLIENT PROJECT #: 70-4111-01 PROJECT MANAGER: Ed T. Dyer

DATE OF COLLECTION: 12/21/92

LOCATION: 11800 SHERMAN WAY

Boring or Well Number	Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES										LABORATORY										FIELD NOTES	Total Number Of Containers	Laboratory Note Number		
						VOL 6018670	VOL 6228620	VOL 6248240	TPH 418.1	TPH 4015 (gasoline)	TPH 4015 (diesel)	REST PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	PH	ASBESTOS	VOL 6018670	VOL 6228620	VOL 6248240	TPH 418.1	TPH 4015 (gasoline)	TPH 4015 (diesel)	REST PCBs 8080	HEX CHROME				ORGANIC LEAD	TOTAL LEAD
Blank	1	—	9:25	WATER	SYNTH	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-1
SV-1	2	5'	9:25	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-1
SV-1	3	5'	9:45	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-2
SV-2	4	5'	10:05	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-3
SV-3	5	5'	10:25	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-4
SV-4	6	5'	10:45	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-5
SV-5	7	5'	11:05	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-6
SV-6	8	5'	11:40	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-7
SV-7	9	5'	12:00	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-8
SV-8	10	5'	12:18	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-9
SV-9	11	5'	12:35	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-10
SV-10	12	5'	12:55	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-11
SV-11	13	5'	13:00	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-12
SV-12	14	5'	14:45	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-13
SV-13	15	5'	14:05	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-14
SV-13	16	5'	14:40	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-15
SV-14	17	5'	15:00	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-16
SV-15	18	5'	15:30	"	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P-17

RELINQUISHED BY: (Signature) Ed T. Dyer DATE/TIME: 12-21-92 RECEIVED BY: (Signature) John H. H.

RELINQUISHED BY: (Signature) Ed T. Dyer DATE/TIME: 12-21-92 RECEIVED BY: (Signature) John H. H.

RELINQUISHED BY: (Signature) Ed T. Dyer DATE/TIME: 12-21-92 RECEIVED BY: (Signature) John H. H.

# CHAIN-OF-CUSTODY RECORD

[illegible]



TRANSEGLOBAL  
ENVIRONMENTAL  
GEOCHEMISTRY, INC.

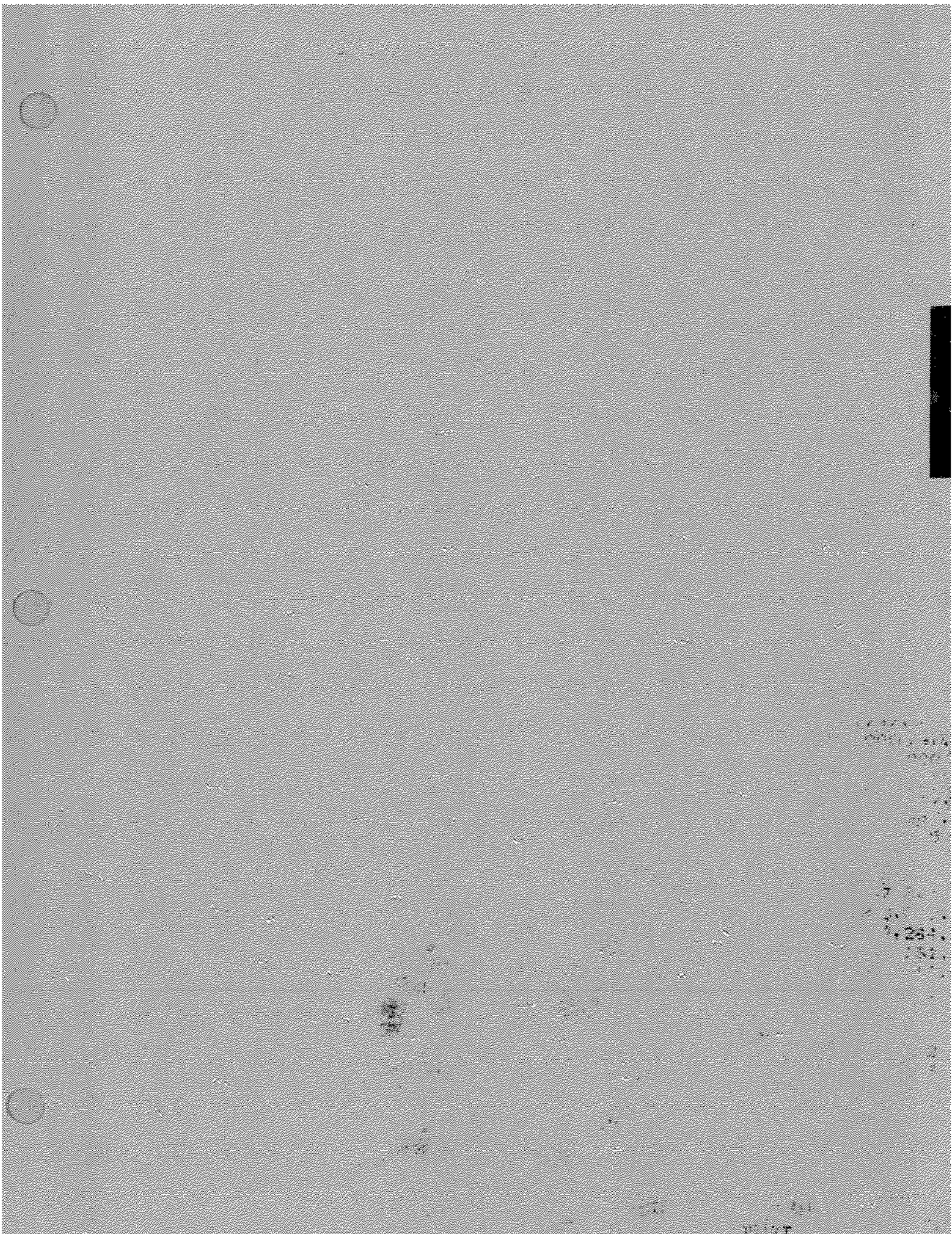
CHAIN-OF-CUSTODY RECORD

CLIENT: KLEINFELDER DATE: 12/28/92 PAGE 1 OF 1  
ADDRESS: 1370 VALLEY VISTA DR, SUITE 150, DALLAS, TX 75244  
PHONE: 909-396-0335 FAX: 909-396-1324  
CLIENT PROJECT # 70-4157-01 PROJECT MANAGER CUT  
FIELD PROJECT # 921221CM  
LOCATION: 11800 SHERMAN WAY  
COLLECTOR: RSP DATE OF COLLECTION: 12/22

Boring or Well Number	Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES										LABORATORY												FIELD NOTES	Total Number Of Containers	Note Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
						VOA 6018010	VOA 6028020	SEM VOA 6246240	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	PH 8015 (acid)	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	PH	ASBESTOS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
BLANK	1	X	845	SYNTH-VAPOR		X	X																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

RELINQUISHED BY: (Signature) [Signature] DATE/TIME 12-22-92 RECEIVED BY: (Signature) [Signature]  
RELINQUISHED BY: (Signature) [Signature] DATE/TIME 12-22-92 RECEIVED BY: (Signature) [Signature]  
RELINQUISHED BY: (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY: (Signature) \_\_\_\_\_





**APPENDIX C**  
**BORING LOG EXPLANATION AND SOIL BORING LOGS**



WELL CONSTRUCTION	CHEMICAL ANALYSES		PTD (ppm)	BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY STATE	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
	LABORATORY	FIELD							
					0			SM	SAND: Fine, with some silt, light yellowish brown (10YR 6/3), loose, subrounded, moist.
				30	5	C1-5		SW	SAND: Fine to medium, with trace of silt and fine gravel, light yellowish brown (10YR 6/4), medium dense, subangular, moist.
				56	10	C1-10		SW	SAND: Fine to medium, with trace of gravel, light yellowish brown (10YR 6/4), very dense, subangular to subrounded, moist.
				26	15	C1-15		SW	SAND: Medium to coarse, with trace of fine to coarse gravel, yellowish brown (10YR 5/6), medium dense, moist.
				25	20	C1-20		SP	SAND: Fine to medium, with trace of coarse gravel, light yellowish brown (10YR 5/4), medium dense, moist.
				26	25	C1-25		SW	SAND: Fine to coarse, with trace of gravel, yellow (10YR 7/6), medium dense, subangular, moist, slightly micaceous (biotite).
				22	30	C1-30		SW	SAND: Fine to coarse, with trace of gravel, very pale brown (10YR 7/3), medium dense, subangular, moist, slightly micaceous (biotite).
				24	35	C1-35		SW	SAND: Fine to medium, with trace of fine gravel, very pale brown (10YR 7/3), medium dense, subangular, moist, slightly micaceous.
				30	40	C1-40		SW SP	SAND: Fine to medium, light brownish gray (10YR 5/2), medium dense, subangular to subrounded, moist.
				75	45				NO SAMPLE
					50				

SURFACE ELEVATION (feet):  
TOTAL DEPTH (feet): 105.50  
DATE DRILLED: 12-28-92

LOGGED BY: B. Bucala

SUPERVISED BY:

DIAMETER of BORING: 8"

WATER ENCOUNTERED AT (feet):

*E. Shapiro* RG 4536



KLEINFELDER

PROJECT NUMBER 70-4157-01-002

January 1993

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

LOG of BORING  
C-1

FIGURE

PAGE 1 of 1

WELL CONSTRUCTION	CHEMICAL ANALYSES		PTD (ppm)	BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY SHEET	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
	LABORATORY	FIELD							
				30	5	C1-50	SW		SAND: Fine to coarse, pale brown (10YR 6/3), medium dense, subangular, moist, slightly micaceous (Biotite).
				35	18	C1-55	SW		SAND: Fine to medium, with trace of coarse gravel and cobbles, pale brown (10YR 6/3), medium dense, subrounded to subangular, moist.
				55	60	C1-60	SP		SAND: Medium with some fine to coarse gravel and cobbles, yellowish brown (10YR 5/4), dense, subangular, moist.
				53	68	C1-65	SP		SAND: Fine to medium, with trace of fine to coarse gravel and cobbles, yellowish brown (10Yr 5/4), dense, subangular, moist.
				74	70	C1-70	SW		SAND: Fine to coarse, yellowish brown (10Yr 5/4), very dense, subangular to subrounded, moist.
				52	75	C1-75	SP		SAND: Medium, brown (10YR 5/3), dense, subrounded, moist.
				50	80	C1-80	SW		SAND: Fine to coarse with some fine to coarse, gravel and cobbles, light yellowish brown (10YR 6/4), very dense, subangular, moist.
				77	85	C1-85	SW		SAND: Fine to coarse, with trace of coarse gravel, pale brown (10YR 6/3), very dense, subangular, moist.
				88	90	C1-90	SW		SAND: Fine to coarse, with trace of fine to coarse gravel, brown (10Yr 5/3), very dense, subangular, moist.
				81	95	C1-95	SW		SAND: Fine to coarse, with trace of fine to coarse gravel, dark yellowish brown (10YR 4/4), very dense, subangular, moist.
				50	100	C1-100	SW		SAND: Fine to medium, with trace of fine gravel, brown (10YR 5/3), very dense, subangular, moist.
					105				



KLEINFELDER

PROJECT NUMBER 70-4157-01-002

January 1993

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

# LOG of BORING C-1

FIGURE

PAGE 2 of



WELL CONSTRUCTION		CHEMICAL ANALYSES		PID (ppm)	BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY STRATA	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	FIELD							
				50	105	105	C1-105	SW		SAND: Fine to coarse, with trace of fine gravel, yellowish brown (10YR 5/4), very dense, subangular, moist.
						110				
						115				
						120				
						125				
						130				
						135				
						140				
						145				
						150				
						155				
						160				



KLEINFELDER

PROJECT NUMBER 70-4157-01-002

January 1993

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

# LOG of BORING C-1

FIGURE

PAGE 3 of :

WELL CONSTRUCTION		CHEMICAL ANALYSES		BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	FIELD						
					0			SW	SAND: Fine, with some silt, very pale brown (10YR 7/3), subrounded, loose, moist.
			17		5	C2-5		SW	SAND: Fine to medium, light yellowish brown (10YR 6/4), medium dense, subrounded, moist.
			28		10	C2-10		SW	SAND: Fine to coarse, very pale brown (10YR 8/3), medium dense, subangular, moist.
			27		15	C2-15		SW	SAND: Fine to coarse, very pale brown (10YR 8/3), medium dense, subangular, moist.
			24		20	C2-20		SW	SAND: Fine to coarse, yellowish brown (10YR 5/8), medium dense, subangular, moist.
			27		25	C2-25		SW	SAND: Fine to coarse, with trace of fine to coarse gravel, light yellowish brown (10YR 6/4), medium dense, subangular, moist, slightly micaceous (biotite).
			30		30	C2-30		SW	SAND: Fine to medium, light yellowish brown (10YR 6/4), medium dense, subangular, moist, slightly micaceous (biotite).
			28		36	C2-36		SW	SAND: Fine, with some silt, yellowish brown (10YR 5/6), medium dense, subrounded, moist, slightly micaceous (biotite).
			28		40	C2-40		SW	SAND: Fine to coarse, with trace of fine to coarse gravel, light yellowish brown (10YR 6/4), medium dense, subangular, moist, slightly micaceous.
			28		45	C2-45		SW	SAND: Fine to coarse, with trace of fine gravel, dark grayish brown (10YR 4/2), medium dense, subrounded to subangular, moist, micaceous (biotite).

SURFACE ELEVATION (feet):  
TOTAL DEPTH (feet): 130.50  
DATE DRILLED: 12-28-82

LOGGED BY: B. Bucola  
SUPERVISED BY: *E. Groper* 264586  
DIAMETER of BORING: 8"  
WATER ENCOUNTERED AT (feet):



KLEINFELDER

PROJECT NUMBER 70-4157-01-002

January 1993

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

# LOG of BORING C-2

FIGURE

PAGE 1 of 3

WELL CONSTRUCTION	CHEMICAL ANALYSES		PTD (ppm)	BLOW COUNT	DEPTH (feet)	SAMPLE			SOIL DESCRIPTION
	LABORATORY	FIELD				NUMBER	LITHOLOGY Sketch	U.S.C.S. Designation	
				33	30	C2-50		SW	SAND: Fine to medium, with trace of fine gravel, dark brown (10YR 3/3), medium dense, subangular, slightly micaceous (biotite).
				31	38	C2-58		SW	SAND: Fine to coarse, with some fine to coarse gravel and cobbles, light brownish gray (10YR 5/1), very dense, subangular, moist.
				50	80	C2-60		SP	SAND: Fine to medium, with trace of fine to coarse gravel and cobbles, light brownish gray (10YR 5/1), very dense, subangular, moist.
				50	88	C2-65		SP	SAND: Fine to medium with trace of coarse gravel, yellowish brown (10YR 5/4), very dense, subangular, moist.
				82	70	C2-70		SP	SAND: Fine to medium with trace of fine to coarse gravel, yellowish brown (10YR 5/4), very dense, subangular, moist.
				50	75				NO SAMPLE: Sampler on cobble.
				50	80	C2-80		SW	SAND: Fine to coarse, with trace of coarse gravel and cobbles, pale brown (10YR 7/3), very dense, subangular, moist.
				50	88	C2-85		SW	SAND: Fine to coarse, with trace of fine gravel and cobbles, dark yellowish brown (10YR 4/4), very dense, subangular to angular, moist.
				90	90	C2-90		SW	SAND: Fine to medium, with trace of fine gravel, very pale brown (10YR 7/3), very dense, subangular, moist.
				50	88	C2-95		SW	SAND: Fine to medium, with trace of fine to coarse gravel, very pale brown (10YR 7/3), very dense, subangular, moist.
				50	100	C2-100		SW	SAND: Fine to medium, with trace of fine gravel, light gray (10YR 7/2), very dense, subangular, moist.
				105					



KLEINFELDER

PROJECT NUMBER 70-4157-01-002

January 1993

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

# LOG of BORING C-2

FIGURE

PAGE 2 of 3

WELL CONSTRUCTION		CHEMICAL ANALYSES		BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	FIELD						
		Feet							
		50		108		C2-108		SM	SAND: Fine to medium, with trace of fine gravel, very pale brown (10YR 7/3), very dense.
		50		110		C2-110		SM	SAND: Fine to medium, with trace of fine gravel, very pale brown (10YR 7/3), very dense, subangular, moist.
		50		115		C2-115		SM	SAND: Fine to medium, with trace of fine gravel, brown (10YR 5/3), very dense, subangular, moist.
		98		120		C2-120		SM	SAND: Fine to medium, with trace of fine gravel, dark grayish brown (10YR 4/2), very dense, subangular, moist.
		99		125		C2-125		SM	SAND: Fine to medium, with trace of fine gravel, brown (10YR 5/3), very dense, subangular, moist.
		50		130		C2-130		SM	SAND: Fine to medium, pale brown (10YR 6/3), very dense, subrounded to subangular, moist.
				135					
				140					
				145					
				150					
				155					
				160					



KLEINFELDER

PROJECT NUMBER 70-4157-01-002

January 1993

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

LOG of BORING  
C-2

FIGURE

PAGE 3 of 3

WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LYTHOLOGY	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
	LABORATORY	FIELD						
			FTD (psf)					
				0			SM	SAND: Fine, with some silt, pale brown (10YR 8/3), loose, subrounded, moist.
				5	C3-5		SM	SAND: Fine to medium, dark yellowish brown (10YR 4/6), medium dense, subrounded, moist.
				10	C3-10		SM	SAND: Fine to coarse, with trace of fine gravel, very pale brown (10YR 8/3), medium dense, subangular, moist.
				15	C3-15		SM	SAND: Fine to coarse, very pale brown (10YR 7/3), medium dense, subangular, moist.
				20	C3-20		SM	SAND: Fine to coarse, yellowish brown (10YR 5/6), medium dense, subangular, moist.
				25	C3-25		SM	SAND: Fine to coarse with trace of fine gravel, yellowish brown (10YR 5/3), medium dense, subangular, moist.
				30	C3-30		SP	SAND: Fine, with trace of fine gravel, dark yellowish brown (10YR 4/4), medium dense, subangular to subrounded, moist.
				35	C3-35		SM	SAND: Fine to coarse, very pale brown (10YR 7/3), medium dense, subangular, moist.
				40	C3-40		SM	SAND: Fine to medium, light yellowish brown (10YR 6/4), medium dense, subangular, moist.
				45	C3-45		SM	SAND: Fine to coarse, with trace of fine to coarse gravel, light brownish gray (10YR 5/2), medium dense, subangular, moist.

SURFACE ELEVATION (feet):  
TOTAL DEPTH (feet): 50.50  
DATE DRILLED: 12-28-82

LOGGED BY: B. Bucala  
SUPERVISED BY: E. G. [Signature] 2-2-93  
DIAMETER of BORING: 8"  
WATER ENCOUNTERED AT (feet):



KLEINFELDER

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

LOG of BORING  
C-3

FIGURE

WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
	LABORATORY	FIELD						
			34	86	C3-50	SM		SAND: Fine to coarse, light yellowish brown (10YR 6/4), medium dense, subangular, moist, slightly micaceous (biotite).
			68	88	C3-55	SM		SAND: Fine to coarse, with trace of fine to coarse gravel and cobbles, pale brown (10YR 6/3), very dense, subangular, moist, slightly micaceous (biotite).
			59	88	C3-60	SP		SAND: Medium, with trace of coarse gravel and cobbles, yellowish brown 910YR 5/4, dense, subangular, moist, slightly micaceous (biotite).
			52	88	C3-65	SM		SAND: Fine to coarse, with trace of fine to coarse gravel and cobbles, light yellowish brown (10YR 6/4), dense, subrounded to subangular, moist, slightly micaceous (biotite).
			74	70	C3-70	SW		SAND: Fine to coarse, yellowish brown (10YR 5/4), very dense, subrounded to subangular, moist.
			78	75	C3-75	SM		SAND: Fine to coarse, with trace of fine to coarse gravel and cobbles, light brownish gray (10YR 6/2), very dense, subangular, moist.
			50	80	C3-80	SM		SAND: Fine to coarse, with trace of fine to coarse gravel, pale brown (10YR 6/3), very dense, subangular, moist.
			72	85	C3-85	SM		SAND: Fine to coarse with trace of fine to coarse gravel and cobbles, dark yellowish brown (10YR 4/4), very dense, subangular, moist.
			50	85	C3-90	SM		SAND: Fine to medium with trace of fine to coarse gravel, pale brown (10YR 6/3), very dense, subangular, moist.
			50	85	C3-95	SM		SAND: Fine to medium, with trace of fine gravel, yellowish brown (10YR 4/4), very dense, subangular, moist.
				100				
				105				



KLEINFELDER

PROJECT NUMBER 70-1157-01-002

January 1993

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

# LOG of BORING C-3

FIGURE

PAGE 2 of

WELL CONSTRUCTION	CHEMICAL ANALYSES		PTD (ft)	BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
	LABORATORY	FIELD							
					0			SN	SAND: Fine, with some silt, light yellowish brown (10YR 6/3), subrounded, moist.
			19		5	C4-5		SM	SAND: Fine to coarse, very pale brown (10YR 7/4), medium dense, subangular, moist.
			30		10	C4-10		SM	SAND: Fine to coarse, very pale brown (10YR 7/3), medium dense, subangular, moist.
			36		15	C4-15		SM	SAND: Fine to coarse, very pale brown (10YR 7/4), medium dense, subrounded to subangular, moist.
			46		20	C4-20		SM	SAND: Fine to coarse, very pale brown (10YR 7/3), dense, subangular, moist.
			52		25	C4-25		SM	SAND: Fine to medium with trace of fine gravel, very pale brown (10YR 8/4), dense, subangular, moist.
			56		30	C4-30		SM	SAND: Fine to coarse with trace of fine to coarse gravel, very pale brown (10YR 7/3), dense, subangular, moist.
			53		35	C4-35		SM	SAND: Fine, with some silt, yellowish brown (10YR 5/4), dense, subrounded, moist.
			57		40	C4-40		SM	SAND: Fine to coarse, with trace of fine gravel, yellow (10YR 7/6), subrounded to subangular, moist.
					45				
					50				

SURFACE ELEVATION (feet):  
TOTAL DEPTH (feet): 41.50  
DATE DRILLED: 12-30-92

LOGGED BY: B. Bucala  
SUPERVISED BY: E. G. Propp R.G. 1522  
DIAMETER OF BORING: 8"  
WATER ENCOUNTERED AT (feet):



PROJECT NUMBER 70-4157-01-002

January 1993

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

# LOG of BORING C-4

FIGURE

PAGE 1 of 1

WELL CONSTRUCTION		CHEMICAL ANALYSES		BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
		LABORATORY	FIELD						
					0				
			15		0	Q-1	SM		SAND: Fine, with some silt, light yellowish brown (10YR 6/3), medium dense, subrounded, moist.
			22		5	CS-5	SM		SAND: Fine to coarse, very pale brown (10YR 7/3), medium dense, subangular, moist.
			20		10	Q-10	SM		SAND: Fine to coarse, with trace of fine to coarse gravel, light gray (10YR 7/2), medium dense, subangular, moist.
			23		15	CS-15	SM		SAND: Fine to coarse, with trace of fine to coarse gravel, yellowish brown (10YR 5/6), medium dense, subangular, moist.
			25		20	CS-20	SM		SAND: Fine to coarse, with trace of fine gravel, very pale brown (10YR 8/4), medium dense, subangular, moist.
			28		25	Q-25	SM		SAND: Fine to medium with trace of fine to coarse gravel, very pale brown (10YR 7/3), medium dense, subangular, moist.
			30		30		SM		NO SAMPLE RECOVERY
			35		35	CS-35	SM		SAND: Fine, with trace of fine to coarse gravel, very pale brown (10YR 7/4), medium dense, subangular to angular, moist.
			40		40	CS-40	SM		SAND: Fine to coarse, with trace of fine gravel, light yellowish brown (10YR 6/4), medium dense, subangular, moist.

SURFACE ELEVATION (feet):  
TOTAL DEPTH (feet): 41.50  
DATE DRILLED: 12-29-82

LOGGED BY: B. Bucala  
SUPERVISED BY: E. Gropen RG 4586  
DIAMETER OF BORING: 8"  
WATER ENCOUNTERED AT (feet):



KLEINFELDER

PROJECT NUMBER 70-4157-01-802

January 1983

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

# LOG of BORING C-5

FIGURE

PAGE 1 of 1



WELL CONSTRUCTION	CHEMICAL ANALYSES		PTD (feet)	BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY STRAT.	U.S.C.S. DESIGNATION	SOIL DESCRIPTION
	LABORATORY	FIELD							
					0				
			17		5	C6-1	SW		SAND: Fine to medium, with some silt, pale brown (10YR 8/3), medium dense, subrounded, moist.
			18		10	C6-5	SW		SAND: Fine to medium, pale brown (10YR 6/3), medium dense, subrounded to subangular, moist.
			25		15	C6-10	SW		SAND: Fine to coarse, with trace of fine to coarse gravel, medium dense, medium dense, subangular, moist.
			32		20	C6-15	SW		SAND: Fine to coarse, with trace of fine to coarse gravel, light yellowish brown (10YR 6/4), medium dense, subangular, moist.
			25		25	C6-20	SW		SAND: Fine to coarse, yellowish brown (10YR 5/4), medium dense, subangular, moist.
			46		30	C6-25	SP		SAND: Fine, brown (10YR 5/3), dense, subrounded, moist, slightly micaceous (biotite).
			49		35	C6-30	SW		SAND: Fine to medium, light yellowish brown (10YR 6/4), dense, subangular, moist.
			52		40	C6-35	SW		SAND: Fine to coarse, with trace of fine gravel, light brownish gray (10YR 6/2), dense, subangular, moist.
			52		45	C6-40	SW		SAND: Fine to coarse, with trace of fine gravel, light yellowish brown (10YR 6/4), dense, subangular, moist.
					50				

SURFACE ELEVATION (feet):  
TOTAL DEPTH (feet): 41.50  
DATE DRILLED: 12-30-92

LOGGED BY: B. Bucala  
SUPERVISED BY: E. Quisenberry RQ 4586  
DIAMETER of BORING: 8"  
WATER ENCOUNTERED AT (feet):



PROJECT NUMBER 70-4157-01-002

January 1993

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

# LOG of BORING C-6

FIGURE

PAGE 1 of

WELL CONSTRUCTION	CHEMICAL ANALYSES		BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY	U.S.C.S. CLASSIFICATION	SOIL DESCRIPTION
	LABORATORY	FIELD						
				0				
				18	C7-1	SM		SAND: Fine, with some silt, dark grayish brown (10YR 4/2), medium dense, subrounded, moist (backfill).
				8	C7-5	SM		SAND: Fine, with some silt, pale brown (10YR 6/3), loose, subrounded, moist (backfill).
				10	C7-10	SM		SAND: Fine to coarse, with trace of fine to coarse gravel and cobbles, very pale brown (10YR 7/4), medium dense, subangular, moist.
				14	C7-15	SM		SAND: Fine to coarse, with trace of fine to coarse gravel and cobbles, brown (10YR 5/3), medium dense, subangular to subrounded, moist.
				20				
				25				
				30				
				35				
				40				
				45				
				50				

SURFACE ELEVATION (feet):

TOTAL DEPTH (feet): 16.90


DATE DRILLED: 12-29-82

LOGGED BY: S. Bucala

SUPERVISED BY: E. Gierke RG 4586

DIAMETER of BORING: 8"

WATER ENCOUNTERED AT (feet):



KLEINFELDER

11800 Sherman Way, North Hollywood

# LOG of BORING

## C-7

FIGURE

PROJECT NUMBER 70-4157-01-002

January 1993

PAGE 1 of 1

WELL CONSTRUCTION	CHEMICAL ANALYSES		PTD Type	BLOW COUNT	DEPTH (feet)	SAMPLE NUMBER	LITHOLOGY Notes	U.S.C. & DESCRIPTION	SOIL DESCRIPTION
	Laboratory	Field							
					0				
				18		C8-1	SM		SAND: Fine, with some silt, dark grayish brown (10YR 4/2), medium dense, subrounded, moist (backfill).
				17	5		SM		NO RECOVERY
				14	10	C8-10	SM		SAND: Fine to coarse, with trace of fine to coarse gravel, very pale brown (10YR 7/4), medium dense, subangular, moist.
				15	15	C8-15	SM		SAND: Fine to medium, with trace of fine to coarse gravel and cobble, brown (10YR 5/3), medium dense, subangular to subrounded, moist.
				20					
				25					
				30					
				35					
				40					
				45					
				50					

SURFACE ELEVATION (feet):  
TOTAL DEPTH (feet): 38.50  
DATE DRILLED: 12-29-92

LOGGED BY: B. Bucala  
SUPERVISED BY: E. Gibson R.G. 4566  
DIAMETER of BORING: 8"  
WATER ENCOUNTERED AT (feet):



KLEINFELDER

PROJECT NUMBER 70-4157-01-002

January 1993

Birken/Woodhouse  
11800 Sherman Way, North Hollywood

LOG of BORING  
C-8

FIGURE

PAGE 1 of



**APPENDIX D**  
**SOIL SAMPLING PROTOCOL**





## APPENDIX D

### SOIL SAMPLING PROTOCOL

The following procedures were used for soil sampling during continuous-flight, hollow-stem auger drilling:

- Augers, drill rods, and all downhole equipment were steam cleaned by Westech, Inc. prior to their arrival at the site. Clean augers and drill rod were used for each boring to minimize the potential for cross-contamination. Augers, drill rods, and associated downhole equipment were steam cleaned by Westech following their departure from the site.
- A Kleinfelder geologist observed the work, visually log the soils, and collected samples at appropriate intervals.
- The Unified Soils Classification System was utilized to classify soils encountered. Additional geologic observations were noted as appropriate. A Munsell Soil Color Chart was used in documenting soil color.
- Soil samples destined for laboratory analysis were collected by a modified Sprague and Henwood split-barrel sampler. The sampler used three clean, 6-inch long, by 2-inch outer diameter brass tubes.
- After the sample had been removed from the sampler, the sampler was completely disassembled and scrubbed in a solution of Liqui-Nox and tap water. It was then rinsed in two separate tap water baths and re-assembled with three clean tubes.
- The sampler was driven by a 140-pound hammer with a 30-inch free fall. Blow counts were recorded as the number of blows per 6 inches of drive.
- The sampler was driven 18 inches at each sampling interval. The first (or lowest) tube was generally retained as the sample for analysis. The middle tube was generally retained as a duplicate if needed. The upper tube was used for soil description.
- After retrieval, the sample was visually logged and immediately sealed with Teflon film-lined caps and labeled. The sample was delivered to the onsite state-certified chemical laboratory by hand within a few minutes of sampling.
- Sample control was maintained by a chain-of-custody record which accompanied the sample. The form documents the time, date, and responsible person during each step in the transportation process.
- The Kleinfelder coded sample numbering system allows identification of sample and client to Kleinfelder while not revealing the client to the laboratory or other interested parties.



- Soil samples were numbered in the following manner:

70-4157-01  
C-1-105  
04-07-92  
at

Where: 70-4157-01: Job Number  
C-1-105: Sample Number (Boring number and depth)  
04-07-92: Date

- An indelible non-water soluble marking pen was used to mark the tubes.







**APPENDIX E**  
**LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY RECORDS**





January 7, 1992

Mr. Ed Trosper  
Kleinfelder  
1370 Valley Vista Drive  
Diamond Bar, CA 91765

SUBJECT: DATA REPORT - 11800 SHERMAN WAY, NORTH HOLLYWOOD -  
KLEINFELDER PROJECT #70-4157-01

TEG Project #921228CM

Mr. Trosper:

Please find enclosed a data report for soil samples from 11800 Sherman Way in North Hollywood for Kleinfelder. The samples were analyzed in TEG's California DOHS certified mobile laboratory (CERT #1667). TEG personnel conducted the following analyses:

- 70  
68 soils for total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1.
- 70  
68 soils for volatile halogenated hydrocarbons by EPA Method 8010.
- 70  
68 soils for volatile aromatic hydrocarbons (BTEX) by EPA Method 8020.
- 1 soil for carbon-range determination by Modified ASTM #2887 (Simulated Distillation).

The results from the simulated distillation analysis of sample C1-55 indicated the lack of hydrocarbons with carbon numbers less than 30.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included on the tables.

TEG appreciates the opportunity to provide analytical services to Kleinfelder for this project. If you have any questions relating to these data or report, please do not hesitate to contact us.

Sincerely,

  
Dr. Blayne Hartman



KLEINFELDER PROJECT #70-4157-01  
11890 SHERMAN WAY  
North Hollywood, CA

TSO Project #931226CM

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010 and 8020) ANALYSIS OF SOILS

SAMPLE ID	C-1-50'	C-1-55'	C-1-55.5'	DUP C-1-55.5'	C-1-60'	C-1-65'	C-1-70'	C-1-75'	C-1-80'	C-1-85'	C-1-90'	C-1-95'	C-1-100'	BLANK
DATE RECEIVED	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92
DATE EXTRACTED	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92
DATE ANALYZED	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92
FROM 12	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
FROM 11	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLOROTHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
METHYLENE CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 TRANS DICHLOROTHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLOROTHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 CIS DICHLOROTHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1 TRICHLOROTHANE	nd	0.130	0.118	0.029	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 DICHLOROTHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROTHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 DICHLOROPROPANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BROMO DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS DICHLOROPROPYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS DICHLOROPROPYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2 TRICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLOROTHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DIBROMO CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRPH (EPA 418.1)	nd	433	--	--	90	12	nd	nd	nd	nd	nd	nd	nd	nd
SUBSTRATE SPIKE RECOVERY	102.0%	98.8%	79.9%	98.8%	86.7%	86.6%	84.0%	79.7%	85.0%	90.9%	89.3%	94.3%	82.7%	

ND INDICATES NOT DETECTED AT DETECTION LIMIT OF 0.001 mg/kg FOR EACH COMPOUND AND 1 mg/kg FOR TRPH

DATA MEASURED ON-SITE IN TSO'S DOHS CERTIFIED MOBILE LABORATORY (CERT #1667)

ANALYSES CONDUCTED BY: MS. STACY WISLER

DATA REVIEWED BY: DR. BLAYNE BARTMAN

*Blayne Bartman*



**TRANSGLOBAL  
ENVIRONMENTAL  
GEOCHEMISTRY, INC.**

KLEINFELDER PROJECT #70-4157-01  
11800 SHERMAN WAY  
North Hollywood, CA

TWO Project #921218CM

**VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010 and 8020) ANALYSIS OF SOILS**

SAMPLE ID	C-1-105'	C-2-55'	C-3-50'	C-2-60'	C-2-65'	C-2-70'	C-2-80'	C-2-85'	C-2-90'	C-2-95'	C-2-100'	C-2-110'	C-2-115'	C-2-120'
DATE RECEIVED	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92
DATE EXTRACTED	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92
DATE ANALYSED	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92	12/28/92
FROM 12	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
FROM 11	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
METHYLENE CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 TRANS DICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 CIS DICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1 TRICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 DICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 DICHLOROPROPANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BROMO DICHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS DICHLOROPROPYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS DICHLOROPROPYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2 TRICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DIBROMO CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TPH (EPA 415.1)	nd	13	129	38	nd	nd	91	35	nd	nd	nd	nd	nd	nd
SUBSTRATE SPIKE RECOVERY	86.6%	125.7%	103.1%	111.9%	83.8%	86.0%	86.9%	113.3%	123.6%	135.2%	122.0%	117.2%	120.0%	122.3%

ND INDICATES NOT DETECTED AT DETECTION LIMIT OF 0.001 mg/kg FOR EACH COMPOUND AND 1 mg/kg FOR TPH

DATA MEASURED ON-SITE IN TWO'S DONE CERTIFIED MOBILE LABORATORY (CERT #1667)

ANALYSES CONDUCTED BY: MS. STACEY WISLER

DATA REVIEWED BY: DR. BLAYNE HARTMAN

*Blayne Hartman*



Blayne Burton



TRANSGLOBAL  
ENVIRONMENTAL  
GEOCHEMISTRY, INC.

KLEINFELDER PROJECT #70-4157-01  
11800 SHERMAN WAY  
North Hollywood, CA

TEQ Project #9121280X

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010 and 8010) ANALYSIS OF SOILS

SAMPLE ID C-4-20' C-4-25' C-4-30' C-4-35' C-4-40' C-5-1' C-5-5' C-5-10' C-5-15' C-5-20' C-5-25' C-5-35' C-6-1' C-6-5'

DATE RECEIVED 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/30/92 12/30/92  
DATE EXTRACTED 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/30/92 12/30/92  
DATE ANALYSED 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/30/92 12/30/92

FROM 12	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
FROM 11	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ACETYLENE CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 TRANS DICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 CIS DICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1 TRICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 DICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 DICHLOROPROPANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BROMO DICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS DICHLOROPROPYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS DICHLOROPROPYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2 TRICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DIBROMO CHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

BENZENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

TEPH (EPA 418.1)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SURROGATE SPIES RECOVERY	97.1%	100.7%	102.0%	99.3%	103.7%	119.4%	77.6%	81.3%	99.4%	87.3%	100.4%	85.0%	90.3%
	97.1%	100.7%	102.0%	99.3%	103.7%	119.4%	77.6%	81.3%	99.4%	87.3%	100.4%	85.0%	90.3%

ND INDICATES NOT DETECTED AT DETECTION LIMIT OF 0.001 mg/kg FOR EACH COMPOUND AND 1 mg/kg FOR TRPH

DATA MEASURED ON-SITE IN TWO'S DONS CERTIFIED MOBILE LABORATORY (CERT #1667)

ANALYSES CONDUCTED BY: MS. STACY WISLER

DATA REVIEWED BY: DR. BLAYNE HARTMAN

*Blayne Hartman*



TEG Project #221228CH

VOLATILE HALOGENATED AND AROMATIC HYDROCARBONS (EPA Method 8010 and 8020) ANALYSIS OF SOILS

SAMPLE ID C-6-10' C-6-15' C-6-20' C-6-25' C-6-30' C-6-35' C-6-40' C-7-1' C-7-5' C-7-10' C-7-15' C-8-1' C-8-10' C-8-15'

DATE RECEIVED 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92  
DATE EXTRACTED 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92  
DATE ANALYZED 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/30/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92 12/29/92

PERM 12	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
VINYL CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
PERM 11	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
METHYLENE CHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 TRANS DICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1 DICHLOROTHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CHLOROFORM	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,3 CIS DICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,1 TRICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CARBON TETRACHLORIDE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 DICHLOROTHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRICHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2 DICHLOROPROPANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
BROMO DICHLOROTHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
CIS DICHLOROPROPYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TRANS DICHLOROPROPYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2 TRICHLOROETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLOROETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DIBROMO CHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TETRACHLOROMETHANE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

PERMETH	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
TOLUENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
ETHYLENE	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
XYLENES	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

TPH (EPA 418.1)	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
SUBSTRATE SPIKE RECOVERY	117.1%	110.8%	178.8%	103.3%	128.0%	117.7%	129.0%	91.7%	83.8%	80.5%	80.4%	128.1%	121.5%

NO INDICATES NOT DETECTED AT DETECTION LIMIT OF 0.001 mg/kg FOR EACH COMPOUND AND 1 mg/kg FOR TPH

DATA MEASURED ON-SITE IN TEG'S DONE CERTIFIED MOBILE LABORATORY (CERT #1667)

ANALYSIS CONDUCTED BY: MS. STACY WISLER

DATA REVIEWED BY: DR. BLAINE HANMAN

*Blayne Hanman*



TRANSEGLOBAL  
ENVIRONMENTAL  
GEOCHEMISTRY, INC.

CLIENT: KLEINFELDER

SITE: 11990 SHERMAN WAY, NORTH HOLLYWOOD

TEG Project # 921230N

RESPONSE FACTORS IN AREA COUNTS

DATE	3 PT. AVG. MP	CONT. CAL.	RPD QC CHECK	RPD QC CHECK	RPD	CONT. CAL.	RPD QC CHECK	RPD QC CHECK	RPD	CONT. CAL.	RPD	CONT. CAL.
12/28/92	1523	17.4	96.1%	1347	87.2%	1471	92.9%	1260	79.5%	1171	73.9%	1339
06:08	17.4	17.4	86.4%	21.5	87.1%	13	64.7%	18	88.1%	21	106.5%	20.0
1,2 TR DICHLORO ETHANE	1096	1330	121.4%	1130	103.1%	1335	120.9%	932	85.0%	1041	95.0%	1142
1,1,1 DICHLORO ETHANE	1363	1566	114.7%	1464	107.4%	1411	105.5%	1226	89.9%	1339	98.3%	1302
CHLOROFORM	1327	1450	118.2%	1283	104.6%	1085	86.8%	1015	82.7%	1011	84.0%	1090
1,1,1 TRICHLORO ETHANE	1355	1571	115.9%	1350	99.6%	1158	85.5%	1079	79.4%	1099	81.1%	1106
CARBON TETRACHLORIDE	16.9	14.5	85.8%	15.3	90.5%	15.0	86.8%	15	91.1%	18	107.1%	17.0
TRICHLORO ETHENE	13.8	14.8	105.6%	14.3	105.9%	13.9	74.1%	14	106.7%	16	119.3%	18.3
TETRACHLORO ETHENE	30	28.6	95.3%	30.8	102.7%	26.2	87.3%	26	88.0%	32	105.7%	29.5
BENZENE	29.7	29.6	99.7%	24.3	81.8%	31.0	104.4%	32	107.4%	38	126.3%	34.7
TOLUENE	25.1	23.9	95.2%	22.1	88.0%	26.0	103.6%	27	107.3%	31	122.7%	28.3
ETHYLENEGLYCOL	96	87.6	101.8%	74.3	86.4%	90.4	72.1%	97	112.4%	109	136.5%	97.7
TOTAL XYLENES												

SAMPLES ANALYZED IN TEG'S DOHS CERTIFIED MOBILE LAB (CERT #1667)

ANALYSIS PERFORMED BY: MS. STACIE WISLER

DATA REVIEWED BY: DR. BLAYNE HARTMAN

*Blayne Hartman*





TRANSGLOBAL  
ENVIRONMENTAL  
GEOCHEMISTRY, INC.

CLIENT: KLINGWELDER

SITE: 11800 SHERMAN WAY, MONTE HOLLYWOOD

TEG Project # 911228CH

RESPONSE FACTORS IN AREA COUNTS

	RPD	QC CHECK	RPD	QC CHECK	RPD	CONT.	RPD	QC CHECK	RPD	QC CHECK	RPD
DATE	12/30/92	12/30/92	12/30/92	12/30/92	12/31/92	12/31/92	12/31/92	12/31/92	12/31/92	12/31/92	12/31/92
	09:30	17:00	17:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00
METHYLENE CHLORIDE	84.5%	1248	79.4%	1382	87.2%	1903	94.3%	1943	97.4%	1956	98.3%
1,2 TRICHLORO ETHANE	99.5%	22	108.1%	19	92.0%	18	91.0%	18	87.6%	18	89.4%
1,1 DICHLORO ETHANE	104.2%	1107	101.0%	1109	101.3%	1194	108.9%	1201	109.6%	1224	111.7%
CHLOROFORM	98.5%	1238	90.8%	1423	106.4%	1679	123.3%	1828	119.4%	1874	115.5%
1,1,1 TRICHLORO ETHANE	84.8%	930	77.4%	1240	101.3%	1456	119.5%	1389	113.2%	1336	108.3%
CARBON TETRACHLORIDE	81.6%	997	73.6%	1309	96.6%	1607	118.2%	1436	106.0%	1479	109.3%
TRICHLORO ETHENE	100.6%	17	101.8%	16	96.4%	16	94.1%	15	87.6%	15	90.5%
TETRACHLORO ETHENE	111.3%	16	116.3%	15	109.6%	14	106.7%	14	100.0%	14	103.7%
BENZENE	98.3%	30	100.3%	28	94.7%	27	91.0%	26	86.6%	26	88.0%
TOLUENE	116.8%	35	118.9%	34	113.5%	32	109.1%	31	103.7%	31	105.4%
ETHYLENE	112.7%	31	121.9%	28	110.8%	26	106.2%	25	101.2%	27	107.2%
TOTAL XYLENES	111.5%	103	119.9%	98	113.8%	92	107.3%	90	104.8%	90	104.5%

SAMPLES ANALYZED IN TEG'S DOMS CERTIFIED MOBILE LAB (CERT #1667)

ANALYSIS PERFORMED BY: MS. STACIE WISLER

DATA REVIEWED BY: DR. SLATYER HARTMAN

*Deane Hartman*



TRANSEGLOBAL  
ENVIRONMENTAL  
GEOCHEMISTRY, INC.

KLEINFELDER PROJECT #70-4157-01  
11800 SHERMAN WAY  
North Hollywood, CA

TEG Project #921228CM

QA/QC DATA SUMMARY - EPA Method 8010/8020 ANALYSES

	MATRIX SPIKE				MATRIX SPIKE DUP				MATRIX SPIKE				MATRIX SPIKE DUP			
	Spiked (mg/kg)	Conc (mg/kg)	Recovery (%)	Spiked (mg/kg)	Conc (mg/kg)	Recovery (%)	Spiked (mg/kg)	Conc (mg/kg)	Spiked (mg/kg)	Conc (mg/kg)	Recovery (%)	Spiked (mg/kg)	Conc (mg/kg)	Spiked (mg/kg)	Conc (mg/kg)	Recovery (%)
1,1 DICHLOROTRIFLUOROETHYLENE	1.000	0.750	75.0%	1.000	0.800	80.0%	5.1%	1.000	0.660	0.700	66.0%	1.000	0.700	70.0%	5.9%	5.9%
METHYLENE CHLORIDE	1.000	0.810	81.0%	1.000	0.720	72.0%	14.2%	1.000	0.730	0.810	79.0%	1.000	0.810	81.0%	2.5%	2.5%
1,2 TRICHLOROETHYLENE	1.000	0.920	92.0%	1.000	0.730	73.0%	23.0%	1.000	0.910	0.910	91.0%	1.000	0.910	91.0%	0.0%	0.0%
1,1 DICHLOROETHANE	1.000	0.970	97.0%	1.000	0.790	79.0%	20.5%	1.000	0.970	0.930	97.0%	1.000	0.930	93.0%	4.2%	4.2%
CHLOROPYR	1.000	0.830	83.0%	1.000	0.830	83.0%	0.0%	1.000	0.790	0.800	79.0%	1.000	0.800	80.0%	1.3%	1.3%
1,1,1 TRICHLOROETHANE	1.000	0.740	74.0%	1.000	0.750	75.0%	6.5%	1.000	0.660	0.780	66.0%	1.000	0.780	78.0%	16.7%	16.7%
CARBON TETRACHLORIDE	1.000	0.740	74.0%	1.000	0.760	76.0%	2.7%	1.000	0.640	0.780	64.0%	1.000	0.780	78.0%	19.7%	19.7%
1,2 DICHLOROETHANE	1.000	0.850	85.0%	1.000	0.830	83.0%	2.4%	1.000	0.660	0.800	66.0%	1.000	0.800	80.0%	19.2%	19.2%
TRICHLOROETHYLENE	2.000	0.810	81.0%	1.000	0.800	80.0%	1.2%	1.000	0.630	0.900	63.0%	1.000	0.900	90.0%	35.3%	35.3%
1,2 DICHLOROPROPANE	2.000	0.720	72.0%	1.000	0.770	77.0%	6.7%	1.000	0.550	0.730	55.0%	1.000	0.730	73.0%	28.1%	28.1%
CIS DICHLOROPROPYLENE	1.000	0.860	86.0%	1.000	0.800	80.0%	7.2%	1.000	0.870	0.910	87.0%	1.000	0.910	91.0%	4.5%	4.5%
1,1,2 TRICHLOROETHANE	1.000	0.830	83.0%	1.000	0.940	94.0%	12.4%	1.000	0.910	0.870	91.0%	1.000	0.870	87.0%	4.5%	4.5%
Tetrachloroethylene	1.000	0.820	82.0%	1.000	0.890	89.0%	8.2%	1.000	0.920	0.780	92.0%	1.000	0.780	78.0%	16.5%	16.5%
CHLOROBENZENE	3.000	2.800	93.3%	3.000	2.410	80.3%	15.0%	3.000	2.440	2.590	81.3%	3.000	2.590	89.7%	9.7%	9.7%
Tetrachloroethane	1.000	0.650	65.0%	1.000	0.850	85.0%	25.2%	1.000	0.610	0.910	61.0%	1.000	0.910	91.0%	19.5%	19.5%
BENZENE	1.000	0.870	87.0%	1.000	0.750	75.0%	14.6%	1.000	1.060	0.890	105.0%	1.000	0.890	89.0%	17.4%	17.4%
TOLUENE	1.000	1.060	106.0%	1.000	0.910	91.0%	15.2%	1.000	1.280	1.080	128.0%	1.000	1.080	108.0%	16.9%	16.9%
ETHYLENE	1.000	1.040	104.0%	1.000	0.920	92.0%	12.2%	1.000	1.250	1.070	125.0%	1.000	1.070	107.0%	15.5%	15.5%
XYLENES	3.000	3.210	107.0%	3.000	2.740	91.3%	15.8%	3.000	3.770	3.280	109.7%	3.000	3.280	109.7%	13.6%	13.6%

ANALYSES PERFORMED IN TEG'S CALIFORNIA DOHS CERTIFIED MOBILE LABORATORY (CERT #1667)

ANALYSES PERFORMED BY: MS. STACIE WISLER

DATA REVIEWED BY: DR. BLAYNE BARTMAN

*Blayne Bartman*



KLEINFELDER PROJECT #70-4157-01  
11800 SHERMAN WAY  
North Hollywood, CA

TEG Project #921238CM

QA/QC DATA SUMMARY - EPA Method 8010/8020 ANALYSES

	MATRIX SPIKE				MATRIX SPIKE DOP			
	Spiked	Measured	Conc.	Recovery	Spiked	Measured	Conc.	Recovery
	(mg/kg)	(mg/kg)	(mg/kg)	(%)	(mg/kg)	(mg/kg)	(mg/kg)	(%)
1,1 DICHLOROTHENE	1.000	0.770	67.0%	53.0%	1.000	0.530	53.0%	23.3%
METHYLENE CHLORIDE	1.000	0.730	73.0%	77.0%	1.000	0.770	77.0%	5.3%
1,2 TR DICHLOROTHYLENE	1.000	0.860	86.0%	83.0%	1.000	0.810	81.0%	3.6%
1,1 DICHLOROTHANE	1.000	0.850	85.0%	81.0%	1.000	0.810	81.0%	4.8%
CHLOROFORM	1.000	0.770	77.0%	91.0%	1.000	0.910	91.0%	16.7%
1,1,1 TRICHLOROTHANE	1.000	0.720	72.0%	83.0%	1.000	0.830	83.0%	14.2%
CARBON TETRACHLORIDE	1.000	0.700	70.0%	78.0%	1.000	0.780	78.0%	10.8%
1,2 DICHLOROTHANE	1.000	0.680	68.0%	82.0%	1.000	0.820	82.0%	18.7%
TRICHLOROTHYLENE	1.000	0.810	81.0%	77.0%	1.000	0.770	77.0%	5.1%
1,2 DICHLOROPROPANE	1.000	0.730	73.0%	72.0%	1.000	0.720	72.0%	1.4%
CI# DICHLOROPROPYLENE	1.000	0.790	79.0%	85.0%	1.000	0.850	85.0%	7.3%
1,1,2 TRICHLOROTHANE	1.000	0.930	93.0%	102.0%	1.000	1.020	102.0%	9.2%
Tetrachloroethylene	1.000	0.970	97.0%	94.0%	1.000	0.940	94.0%	3.1%
CHLOROBENZENE	3.000	2.710	90.3%	78.3%	3.000	2.350	78.3%	14.2%
Tetrachloroethane	1.000	0.930	93.0%	73.0%	1.000	0.790	73.0%	16.3%
BENZENE	1.000	0.890	89.0%	96.0%	1.000	0.960	96.0%	7.6%
TOLUENE	1.000	1.130	113.0%	115.0%	1.000	1.150	115.0%	1.8%
ETHYLENE	1.000	1.070	107.0%	116.0%	1.000	1.160	116.0%	8.1%
XYLENES	3.000	3.370	112.3%	114.3%	3.000	3.430	114.3%	1.8%

ANALYSES PERFORMED IN TEG'S CALIFORNIA DOHS CERTIFIED MOBILE LABORATORY (CERT #1667)

ANALYSES PERFORMED BY: MS. STACIE WISSLER

DATA REVIEWED BY: DR. BLAYNE HARTMAN

*Blayne Hartman*

\* OP # 2

RUN DATA STORAGE

Store signal data [Y/N\*]: Y

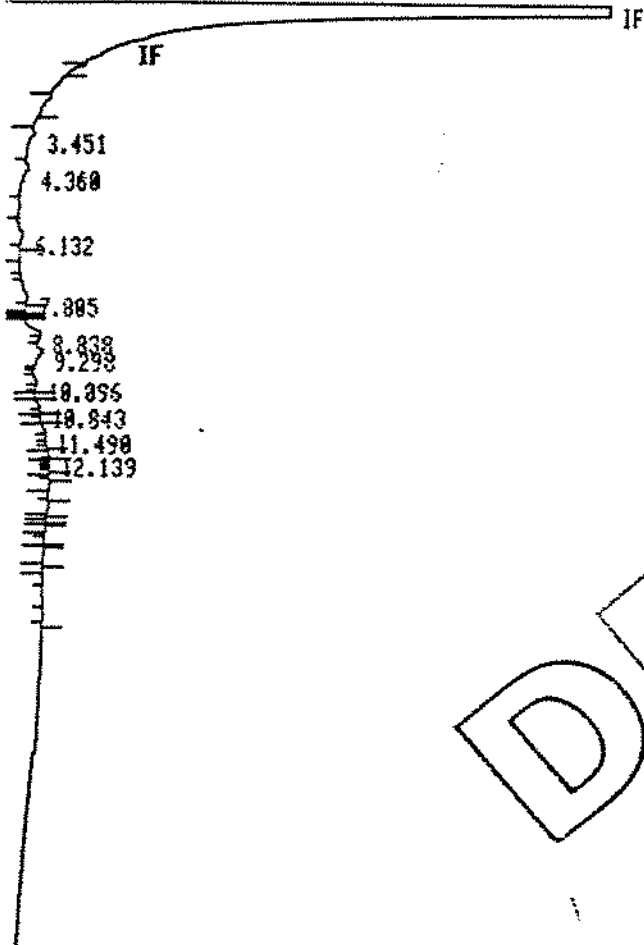
Device [M\*]:

CAUTION: Previous signal data will be lost

Bunched or raw data [B/R\*]: B

Store processed peaks [Y/N\*]:

\* RUN # 3 JAN 11, 1993 18:43:19  
START



STOP

Closing signal file M:SIGNAL .BNC

RUN# 3 JAN 11, 1993 18:43:19

SIGNAL FILE: M:SIGNAL.BNC

AREA#

RT	AREA	TYPE	WIDTH	AREA#
3.451	7759	BB	.130	9.22384
4.368	17678	BB	.227	21.81546
6.132	13879	PB	.273	16.49925
7.885	12836	PB	.254	14.38838
9.298	23625	PB	.237	28.88522
10.896	3994	PB	.126	4.74884
10.843	2981	PB	.133	3.44869
11.498	2247	BB	.115	2.67122

TOTAL AREA= 84119

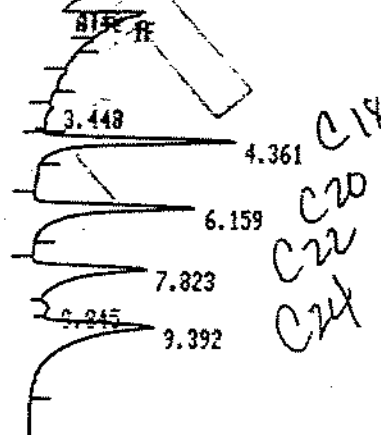
\* LIST: ZERO = 10, 140.249

\* LIST: ZERO = 10, 13.196

\* LIST: ZERO = 10, 0.591

\* RUN # 2 JAN 11, 1993 10:25:01  
START

IF



STOP

RUN# 2 JAN 11, 1993 10:25:01

AREA#

RT	AREA	TYPE	WIDTH	AREA#
3.448	5354	BB	.108	.22972
4.361	513410	BB	.196	22.82834
6.159	601426	BB	.274	25.80476
7.823	495719	BB	.331	21.26930
8.845	19781	BB	.219	.84872
9.392	694989	BB	.460	29.81917

TOTAL AREA=2338678  
MUL FACTOR=1.0000E+00



## ANALYTICAL PROCEDURES

### SAMPLE PREPARATION

#### *Waters*

Separate water aliquots are extracted for TPH analysis (gasoline and diesel) by liquid-liquid extraction with freon 113 using a modified EPA Method 3510. For volatile aromatics and chlorinated hydrocarbons (EPA 601 & 602), water samples are purged of volatiles in a Tekmar LSC-2000 purge & trap following EPA Method 5030.

#### *Soils*

Soil samples are extracted with methanol for volatile chlorinated hydrocarbon compounds (EPA 8010) and with freon 113 for volatile aromatic hydrocarbon compounds (EPA 8020) and fuel compounds (DOHS approved EPA 8015m) by hand-shaking for 2 minutes and sonification for 10 minutes.

### GAS CHROMATOGRAPHY

#### *Volatile Chlorinated Hydrocarbons*

Water samples and soil extracts are purged in a Tekmar LSC-2000 purge & trap, and backflushed into a Shimadzu 14A gas chromatograph equipped with megabore capillary columns and photoionization detector (PID) and Hall electrolytic detectors following EPA Methods 601/8010 and 602/8020.

#### *Volatile Aromatic Hydrocarbons (BTEX) & Total Fuel Hydrocarbons (TPH)*

An aliquot of the soil extract is injected on-column into a Shimadzu gas chromatograph equipped with megabore capillary columns, photoionization (PID) and flame ionization detectors (FID).

### TOTAL RECOVERABLE HYDROCARBONS

Extracts are scrubbed with silica gel and measured on a BUCK 404 Infrared Analyzer following EPA 418.1 protocols.

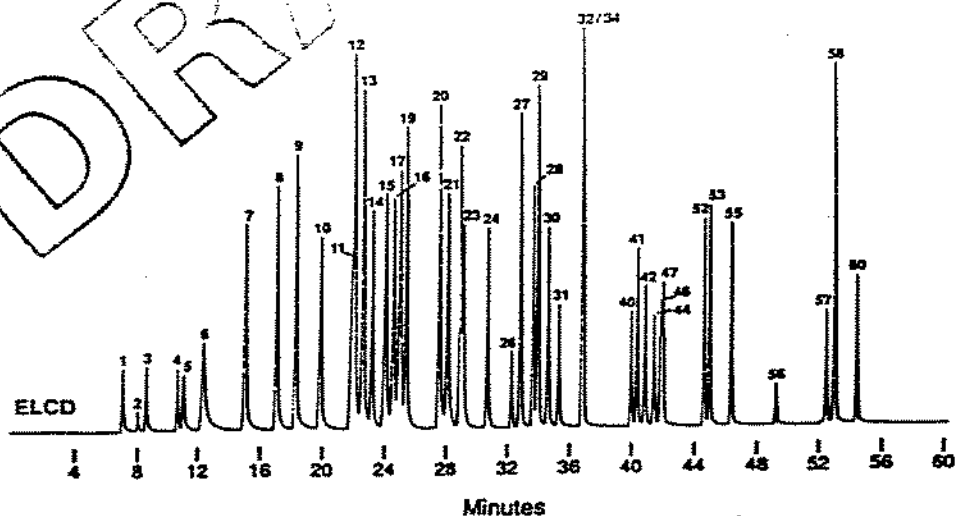
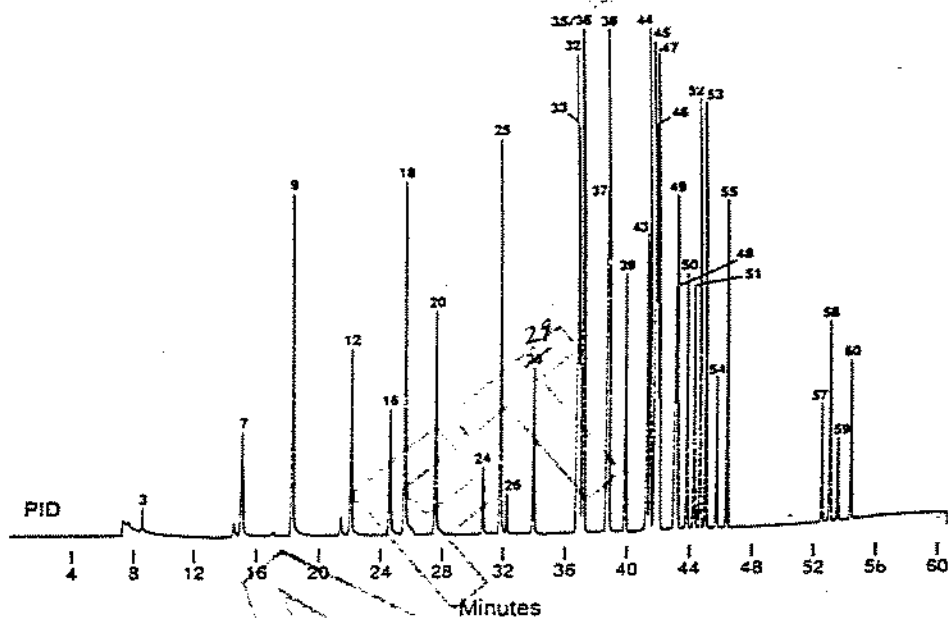
### DATA ACQUISITION & PROCESSING

Data from the gas chromatographs are integrated and plotted by Hewlett-Packard 3393A computing integrators. Separate chromatograms are printed for each detector. The resulting chromatograms are inspected at the end of each run and the data entered into an IBM-compatible computer for on-site processing and evaluation.

# HALOGENATED & AROMATIC VOLATILE HYDROCARBONS

EPA 601/602 & 8010/8020

1. Dichlorodifluoromethane
2. Chloromethane
3. Vinyl chloride
4. Bromomethane
5. Chloroethane
6. Trichlorofluoromethane
7. 1,1-Dichloroethane
8. Methylene chloride
9. trans-1,2-Dichloroethane
10. 1,1-Dichloroethane
11. 2,2-Dichloropropane
12. cis-1,2-Dichloroethane
13. Chloroform
14. Bromochloromethane
15. 1,1,1-Trichloroethane
16. 1,1-Dichloropropane
17. Carbon tetrachloride
18. Benzene
19. 1,2-Dichloroethane
20. Trichloroethene
21. 1,2-Dichloropropane
22. Bromodichloromethane
23. Dibromomethane
24. cis-1,3-Dichloropropene
25. Toluene
26. trans-1,3-Dichloropropene
27. 1,1,2-Trichloroethane
28. 1,3-Dichloropropane
29. Tetrachloroethane
30. Dibromochloromethane
31. 1,2-Dibromomethane
32. Chlorobenzene
33. Ethyl benzene
34. 1,1,1,2-Tetrachloroethane
35. m-Xylene
36. p-Xylene
37. o-Xylene
38. Styrene
39. Isopropyl benzene
40. Bromoform
41. 1,1,2,2-Tetrachloroethane
42. 1,2,3-Trichloropropane
43. n-Propyl benzene
44. Bromobenzene
45. 1,3,5-Trimethylbenzene
46. 2-Chlorotoluene
47. 4-Chlorotoluene
48. tert-Butylbenzene
49. 1,2,4-Trimethylbenzene
50. sec-Butylbenzene
51. p-Isopropyltoluene
52. 1,3-Dichlorobenzene
53. 1,4-Dichlorobenzene
54. n-Butylbenzene
55. 1,2-Dichlorobenzene
56. 1,2-Dibromo-3-chloropropane
57. 1,2,4-Trichlorobenzene
58. Hexachlorobutadiene
59. Naphthalene
60. 1,2,3-Trichlorobenzene





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# CHAIN-OF-CUSTODY RECORD

BOTTOM #1

CLIENT: KLEINFELDER  
ADDRESS: 1370 Valley View Drive, Suite 150, Diamond Bar  
PHONE: (909) 396-0335 FAX: (909) 396-1324  
CLIENT PROJECT #: 70-4117-01 PROJECT MANAGER: E. TRUSPER  
DATE: 12-28-72 PAGE 1 OF 1  
TEG PROJECT #: 921228CM  
LOCATION: 11800 Seaman way  
COLLECTOR: B. Beck DATE OF COLLECTION: 11-78-79

Boring or Well Number	Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	VOA 6018010	VOA 6248240	Semi Vol 62518270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	PMA 610/8100	HEX/PCBs 8080	ORGANIC LEAD	TOTAL LEAD	PH	ASBESTOS	AL/128K1	FIELD NOTES	Total Number Of Containers	Laboratory
C-1		5		Soil	Beck's take																	
		10																				
		15																				
		20																				
		25																				
		30																				
		35																				
		40																				
		45																				
		50																				
		55																				
		60																				
		65																				
		70																				
		75																				
		80																				
		85																				
		90																				

RELINQUISHED BY: (Signature) [Signature] DATE/TIME 12-28-72 RECEIVED BY: (Signature) [Signature] DATE/TIME 12-28-72  
RELINQUISHED BY: (Signature) [Signature] DATE/TIME 12-28-72 RECEIVED BY: (Signature) [Signature] DATE/TIME 12-28-72  
RELINQUISHED BY: (Signature) [Signature] DATE/TIME 12-28-72 RECEIVED BY: (Signature) [Signature] DATE/TIME 12-28-72





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# CHAIN-OF-CUSTODY RECORD

BOTTOM #1

CLIENT: <u>Kleinbiller</u>				DATE: <u>12-28-92</u> PAGE <u>2</u> OF <u>7</u>			
ADDRESS: <u>1370 Valley Vista Dr, Suite 150, Diamond Bar</u>				TEG PROJECT #: <u>921228CH</u>			
PHONE: <u>909-396-0335</u> FAX: <u>909-396-1324</u>				LOCATION: <u>11800 Skidmore Way</u>			
CLIENT PROJECT #: <u>20-4457-01</u> PROJECT MANAGER: <u>E. TROTSNER</u>				COLLECTOR: <u>S. Trotsner</u> DATE OF COLLECTION: <u>12-28-92</u>			

Boring or Well Number	Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES														FIELD NOTES	Total Number Of Containers	Laboratory Note Number
						VOA 8018010	VOA 6028020	Semi VOA 6248240	TPH 418.1	TPH 8015 (total)	TPH 8015 (diesel)	TPH 8015 (oil & grease)	PNH 6108100	PEST/PCBS 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	BH	ASBESTOS			
C-1		95		Sol	Brass tube	X	X	X	X	X	X	X	X	X	X	X	X					
		100																				
		105																				
C-2		5																				
		10																				
		15																				
		20																				
		25																				
		30																				
		35																				
		40																				
		45																				
		50																				
		55																				
		60																				
		65																				
		70																				
		80																				

LABORATORY NOTES: Hold

RELINQUISHED BY: (Signature) [Signature] DATE/TIME: 12-28-92 RECEIVED BY: (Signature) [Signature] DATE/TIME: 12-28-92

RELINQUISHED BY: (Signature) [Signature] DATE/TIME: 12-28-92 RECEIVED BY: (Signature) [Signature] DATE/TIME: 12-28-92

RELINQUISHED BY: (Signature) [Signature] DATE/TIME: 12-28-92 RECEIVED BY: (Signature) [Signature] DATE/TIME: 12-28-92



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# CHAIN-OF-CUSTODY RECORD

BOTTLE #1

CLIENT: <u>Kleinfelder</u>				DATE: <u>12-28-41</u> PAGE <u>3</u> OF <u>7</u>					
ADDRESS: <u>1370 Valley Vista Dr, Suite 150, Diamond Bar, CA</u>				TEG PROJECT #: <u>921228CH</u>					
PHONE: <u>909-396-0335</u> FAX: <u>909-396-1324</u>				LOCATION: <u>11800 Sherman Way</u>					
CLIENT PROJECT #: <u>20-417-01</u> PROJECT MANAGER: <u>E. TROSPER</u>				COLLECTOR: <u>Burke</u> DATE OF COLLECTION: <u>12-28-41</u>					
Boring or Well Number	Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	FIELD NOTES	Total Number Of Containers	Laboratory Note Number
C-2		85				VOA 60180.0 VOA 60280.0 Sem. Vol 62482.0 TPH 418.1 TPH 8015 (gasoline) TPH 8015 (diesel) TPH 8015 (oil & m) PNA 6108100 PEST/PCBS 8080 HEX CHROME ORGANIC LEAD TOTAL LEAD PH ASBESTOS			
LABORATORY NOTES:									
RELINQUISHED BY: (Signature) <u>[Signature]</u>				DATE/TIME		RECEIVED BY: (Signature) <u>[Signature]</u>			
RELINQUISHED BY: (Signature) <u>[Signature]</u>				DATE/TIME		RECEIVED BY: (Signature) <u>[Signature]</u>			
RELINQUISHED BY: (Signature)				DATE/TIME		RECEIVED BY: (Signature)			



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# CHAIN-OF-CUSTODY RECORD

BOTTOM #1

CLIENT: KLEINFELDER  
ADDRESS: 1370 VALLEY VISTA DR, SUITE 180, P.O. BOX 180  
PHONE: 909-439-6033 (FAX: 909-439-6033)  
CLIENT PROJECT #: 20-4119181 PROJECT MANAGER: ED TRASPER  
DATE: 12-29-92 PAGE 4 OF 7  
TEG PROJECT #: 921228CM  
LOCATION: 11800 SHERMAN WAY  
COLLECTOR: B. BROWN DATE OF COLLECTION: \_\_\_\_\_

Boring or Well Number	Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	VOA 601/8010	VOA 624/8020	Semi VOA 625/8020	TPH 418.1	TPH 8015 (water)	TPH 8015 (soil)	PAH 610/8100	HEX CHROME	ORGANIC LEAD	ASBESTOS	FIELD NOTES	Total Number Of Containers	Laboratory
65		1		Soil	Brass														
		3																	
		10	13:30																
		15																	
		20																	
		25																	
		35																	
		40																	
67		1																	
		5																	
		10	12:45																
		15	12:45																
62		90	12:25																
		95	12:30																
		100	12:37																
		105	13:00																
		110	13:00																
		115	13:35																

RELINQUISHED BY: (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY: (Signature) \_\_\_\_\_  
RELINQUISHED BY: (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY: (Signature) \_\_\_\_\_  
RELINQUISHED BY: (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY: (Signature) \_\_\_\_\_

# CHAIN-OF-CUSTODY RECORD

Box 1

CLIENT: KLEINFELDER  
ADDRESS: 1370 HALEY VISTA DR  
PHONE: 909-396-0335 FAX: 909-396-1324  
CLIENT PROJECT #: 70-4157-01 PROJECT MANAGER: CD MADSEN

[illegible]

RELINQUISHED BY: (Signature) <i>Robert J. Ford</i>	DATE/TIME 12-29-94	RECEIVED BY: (Signature) <i>Blaine Hansen</i>	LABORATORY NOTES:
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	



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GEOCHEMISTRY, INC.

# CHAIN-OF-CUSTODY RECORD

BOTTOM #1

CLIENT: <u>KLEINFELDER</u>	DATE: <u>12-30-92</u>	PAGE <u>6</u> OF <u>7</u>
ADDRESS: <u>1370 VALLEY VISTA DR.</u>	TEG PROJECT #: <u>921228 CM</u>	
PHONE: <u>909-396-0335</u>	LOCATION: <u>1800 STEWART WAY N. HAWAII</u>	
CLIENT PROJECT #: <u>70-4157-01</u>	COLLECTOR: <u>B. BROWN</u>	DATE OF COLLECTION: <u>12-30-92</u>
PROJECT MANAGER: <u>ED TROSAER</u>		

Boring or Well Number	Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	VOA 6018010	VOA 6218020	Semi VOA 6218020	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (oil)	PEST/PCBS 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	PH	ASBESTOS	FIELD NOTES	Total Number Of Containers	Laboratory	
C6		1	0830	Soil	BRASS TUBE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C6		5	0910			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C6		10	0910			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C6		15	0910			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C6		20	0910			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C6		25	0910			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C6		30	0910			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C4		5	1235			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C4		10	1235			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C4		15	1235			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C4		20	1235			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C4		25	1235			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C4		30	1235			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C4		35	1235			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C4		40	1235			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C3		5	1435			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C3		10	1435			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
C3		15	1435			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
<u>[Signature]</u>	<u>12/30/92</u>	<u>[Signature]</u>	<u>12/30/92</u>
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
<u>[Signature]</u>	<u>12/30/92</u>	<u>[Signature]</u>	<u>12/30/92</u>
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
<u>[Signature]</u>	<u>12/30/92</u>	<u>[Signature]</u>	<u>12/30/92</u>

LABORATORY NOTES:  
DISPOSE SAMPLES @ TEG

Hold



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# CHAIN-OF-CUSTODY RECORD

BOTTOM # 1

CLIENT: <u>KLEINFELDER</u>	DATE: <u>12-30-92</u>	PAGE <u>7</u> OF <u>7</u>
ADDRESS: <u>1370 VALLEY VIEW DR.</u>	TEG PROJECT #: <u>921228CM</u>	
PHONE: <u>909 396-0335</u>	LOCATION: <u>11800 SHEPARD WAY, N. HOLLYWOOD</u>	
CLIENT PROJECT #: <u>7D-4157-01</u>	COLLECTOR: <u>B. BURCH</u>	DATE OF COLLECTION: <u>12-30-92</u>
PROJECT MANAGER: <u>CA TROSKA</u>		

Boring or Well Number	Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	VOA 6018010	VOA 6028020	Sem-Vol 6248240	TPH 418.1	TPH 8015 (total)	TPH 8015 (extract)	PNA 6108100	PEST/PCBs 8080	HEX CHLOROM	ORGANIC LEAD	TOTAL LEAD	PH	ASBESTOS	FIELD NOTES	Total Number	Of Containers	Laboratory
C3		20	1435	Soil	BRASS TUBE															Hold			
C3		25	1525																				
C3		30	1525																				
C3		35	1525																				
C3		40	1525																				
C3		45	1525																				
C3		50	1525																				
C3		55	1525																				
C3		60	1549																				
C3		65	1549																				
C3		70	1606																				
C3		75	1606																				
C3		80	1606																				
C3		85	1610																				
C3		90	1635																				
C3		95	1635																				
C6		35	9:10																				
C6		40	9:10																				

RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>12/30/92</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	LABORATORY NOTES: <u>DISPOSE SAMPLES @ TEG</u>
RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>12/30/92</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	
RELINQUISHED BY: (Signature) <u>[Signature]</u>	DATE/TIME <u>12/30/92</u>	RECEIVED BY: (Signature) <u>[Signature]</u>	





## **APPENDIX F**

### **TABLE 2-1 OF THE LEAKING UNDERGROUND FUEL TANK MANUAL**





**Table 2-1**  
**Leaching Potential Analysis for Gasoline and Diesel**  
**Using Total Petroleum Hydrocarbons (TPH)**  
**and Benzene, Toluene, Xylene and Ethylbenzene (BTX&E)**

The following table was designed to permit estimating the concentrations of TPH and BTX&E that can be left in place without threatening ground water. Three levels of TPH and BTX&E concentrations were derived (from modeling) for sites which fall into categories of low, medium or high leaching potential. To use the table, find the appropriate description for each of the features. Score each feature using the weighting system shown at the top of each column. Sum the points for each column and total them. Match the total points to the allowable BTX&E and TPH levels.

SITE FEATURE	S C O R E	SCORE 10 PTS IF CON- DITION IS MET	S C O R E	SCORE 9 PTS IF CON- DITION IS MET	S C O R E	SCORE 5 PTS IF CON- DITION IS MET
Minimum Depth to Ground Water from the Soil Sample (feet)	10	>100		51-100		25-50 \1
Fractures in subsurface (applies to foothills or mountain areas)	10	None		Unknown		Present
Average Annual Precipitation (inches)		<10	9	10-25		26-40 \2
Man-made conduits which increase vertical migration of leachate	10	None		Unknown		Present
Unique site features: recharge area, coarse soil, nearby wells, etc		None	9	At least one		More than one
COLUMN TOTALS-TOTAL PTS	30	+	18	+		= 48
RANGE OF TOTAL POINTS	49pts or more		41 - 48 pts		40pts or less	
MAXIMUM ALLOWABLE B/T/X/E LEVELS (PPM)	1/50/50/50		.3/.3/1/1		NA \3	
MAXIMUM ALLOWABLE TPH LEVELS (PPM)	GASOLINE	1000	100		10	
	DIESEL/IRH	10000	1000		100	

- \1 If depth is greater than 5 ft. and less than 25 ft., score 0 points.  
 If depth is 5 ft. or less, this table should not be used.
- \2 If precipitation is over 40 inches, score 0 points.
- \3 Levels for BTX&E are not applicable at a TPH concentration of 10ppm (gasoline) or 100ppm (diesel) (For explanation see step 6, page 27.)





# California Regional Water Quality Control Board Los Angeles Region



Terry Tamminen  
Secretary for  
Environmental  
Protection

Over 51 Years Serving Coastal Los Angeles and Ventura Counties

Recipient of the 2001 Environmental Leadership Award from Keep California Beautiful

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Governor

320 W. 4th Street, Suite 200, Los Angeles, California 90013  
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.swrcb.ca.gov/rwqcb4>

Ralph Betsy Woodhouse  
FX-6 Personal Privacy

September 30, 2004

Mr. Ralph Woodhouse  
FX-6 Personal Privacy

**NO FURTHER REQUIREMENTS - FORMER MERCURY FASTNERS, 11800  
SHERMAN WAY, NORTH HOLLYWOOD, CALIFORNIA (FILE NO. 111.0728)**

Dear Mr. Woodhouse:

California Regional Water Quality Control Board, Los Angeles Region, ("Regional Board") staff have received a report dated August 2, 2004 from your consultant, Mr. LaConde of SCS Engineers. The report consists of historical assessment information regarding the subject site. This information is critical to the evaluation of the site as a potential contributor to heavy metal contamination of the San Fernando Valley. As you may recall, during our June 8, 2004 meeting, you and your consultant did not have any documents or site plans to present to Regional Board staff that would have supported the premise that the 1,350 milligram per kilogram (mg/kg) concentration of total chromium detected in soil detected at the time of the 1984 Los Angeles County Department of Health Services investigation was de minimus in extent and resulting from the metal deburring operation only. However, based on the information recently provided for our review regarding current and past operations at the property located at 11800 Sherman Way, North Hollywood, California, and provided that the information is accurate and representative of site conditions, no further requirements need be met with respect to this Regional Board's Chromium VI Investigation in San Fernando Valley.

If new contamination is encountered during future site construction or redevelopment activities, you are required to provide written notification to this Regional Board immediately and submit a follow-up written report within 72 hours. In addition, appropriate health and safety measures must be fully implemented. Any contaminated soils that may be removed from the site shall be removed only to a United States Environmental Protection Agency (USEPA), and/or California Environmental Protection Agency-Department of Toxic Substance Control (Cal EPA-DTSC) approved facility.

It should be noted that this letter in no way releases you from responsibility regarding other chemicals or releases to the environment from your property. Additionally, the jurisdiction requirements of other agencies, such as the USEPA, and Cal EPA-DTSC, are not affected by this

*California Environmental Protection Agency*



Recycled Paper



Mr. Ralph Woodhouse  
Former Mercury Aerospace Fastners

2

September 30, 2004

Regional Board's "no further requirements" determination. Such agencies may choose to make their own determination concerning the Site.

If you have any questions regarding this matter, please call Mr. Alex Lapostol at (213) 576-6807 or Mr. Dixon Oriola at (213) 576-6803.

Sincerely,



Jonathan Bishop  
Executive Officer

cc:

Mr. David Stensby, Superfund Division, USEPA, Region IX  
Mr. Mark Mackowski, Upper Los Angeles River Area (ULARA) Watermaster  
Mr. Thomas Erb, Los Angeles Department of Water & Power  
Mr. Leighton Fong, City of Glendale  
Mr. Fred Lantz, City of Burbank  
Mr. Kenneth LaConde, SCS Engineers

**SCS ENGINEERS**

August 2, 2004  
File No. 01203240

Mr. Alex Lapostol  
Regional Water Quality Control Board  
320 W. 4<sup>th</sup> Street, Suite 200  
Los Angeles, California 90013

*Ralph Betsy Woodhouse*  
80452 Via Cantabria  
San Juan Capistrano,  
Calif. 92675

**Subject: Caravan Fashions (Former Mercury Aerospace Fasteners), 11800 Sherman Way, North Hollywood, California (File No. 111.0728)**

Dear Alex:

A

Enclosed is our submittal as a result of the June 25<sup>th</sup> site visit. Those in attendance at this meeting were yourself, Mr. Ralph Woodhouse, and me. The purpose of the visit was to obtain a "first hand" view of the site, and to specifically inspect the area that was the focus of a Los Angeles County inspection in 1984.

This submittal has been divided into several topic areas, described in more detail below:

1. The 1984 Heavy Metals Incident – Narrative, attachments, and figures to describe in detail what occurred during the 1984 Los Angeles County inspection, wherein heavy metal data were reported (note: these data were later used by the RWQCB to make the case for further hexavalent chromium testing).
2. Previous Site Investigations – Brief summary of previous site investigations with figures to show sampling locations. No heavy metal testing was ever performed during any of these investigations. Hence, no analytical data is included, since it is not relevant to the hex chrome investigation.
3. Chromium Chemistry – Brief section of basic chemistry to demonstrate that elemental chromium and nitric acid *cannot* react with each other.
4. Contingency Soil Sampling – Brief explanation with figure describing boring locations and sampling and testing protocol, if required.

## **1. THE 1984 HEAVY METALS INCIDENT**

The principal reason that this site has been included in the RWQCB's hex chromium program is due to the heavy metals data generated by Los Angeles County in 1984. A more detailed explanation of this event is presented in the following narrative.

On May 21, 1984, acting on a complaint, the Los Angeles County Department of Health Services conducted an inspection of the Microdot facility. They found evidence of unauthorized spills—specifically, nitric acid, and oily liquids. These spills were observed at the bottom of a loading ramp on the southwestern edge of the property. Nitric acid and oily residues had evidently run down the slope of the ramp and had pooled at the bottom in the area of the chain link fence that separates the site's property boundary from the adjacent railroad right-of-way (to the west of the ramp). Figure 1 shows the approximate location of the contaminated area.



Two (2) samples of liquids and three (3) samples of solids were taken by LA County inspectors and were tested for nitrates (to verify that the acid in question was, indeed, nitric acid). Sample #3 (a liquid taken directly from an acid bath) showed a nitrate concentration of 920,000 mg/L, confirming the fact that nitric acid was the acid being used. Several of the soil samples also confirmed the presence of high nitrate concentrations. Page 00045 in the attachment presents the details of each sample as well as the analytical results.

Microdot then hired Analytical Research Labs, Inc. (ARLI) to obtain surface and 3-foot below-grade soil samples from the pooling area in question. Ten (10) surface and shallow subsurface (3-foot below-grade) samples were taken and analyzed for pH, copper, cadmium, chromium, lead, nickel, thallium, and zinc. Attached pages 000002 through 000004A present the ARLI data. All analyses were for TTLC (total) metals--no STLC or hexavalent chromium tests were run. The emphasis placed by the County focused on a pH, nitrates, copper, and waste oils.

While no map detailing soil locations exists in our files, it is generally believed that the samples were taken in the vicinity of the bottom of the ramp whose western edge is on the property boundary. It is in this area where pools of greenish liquids and oil staining were observed by the County and from where the 10 soil samples were taken.

In response to the County's inspection and the results of the soil testing, Microdot initiated a cleanup of the area under question. An area of approximately 10 by 30 feet (exact area unknown) was excavated to an average depth of about 3 feet to remove the contaminated soil. Attached Page 000011 presents a copy of an invoice to BKK for the disposal of 86.7 tons of soil as well as crushed drums and weeds.

Based on conversations with the property owner, Mr. Ralph Woodhouse, who was also the president and owner of Microdot's predecessor, Mercury Aerospace Fasteners, the following facts should be noted:

- When Mercury Aerospace was in operation, no acid baths of any kind were ever used. Therefore, the nitric acid bath/wash that was utilized by Microdot was unique to their specific line of products.
- The manufacturing processes employed by Mercury and to a great extent by Microdot were principally physical--consisting of stamping and cutting. No chemical reactions were used during manufacturing. No chrome plating was ever performed.
- Degreasing solvents were used both by Mercury and Microdot, but their uses and potential soil contamination was previously investigated by the RWQCB. No Further Action (NFA) letters were issued. A copy of the RWQCB's NFA letter, dated May 18, 1993, is enclosed.
- As a final step in production, fasteners were "deburred" in a tumbling action fashion, thus generating small but discrete metallic particles, some of which contained *elemental* chromium. As will be discussed in another section of this response, elemental chromium is *non-reactive* with nitric acid. In fact, nitric acid *passivates* elemental chromium.

Therefore, it is chemically impossible to generate hexavalent chromium from the mixing of a combination of elemental chromium and nitric acid.

## 2. PREVIOUS SITE INVESTIGATIONS

In addition to the 1984 incident, several other consultants have performed investigative work for a variety of reasons. These are summarized below:

*Final Report for the Phase I Subsurface Investigations, May 1, 1989, Enviropro, Inc.* Investigation encompassed a soils investigation to comply with AB 1803. Three test borings were drilled to total depth of 10 feet below ground surface (bgs) in one location, and at 1, 5, and 10 feet bgs in the other two locations. All samples were analyzed for VOCs via EPA 8010/8020 and TPH (EPA Method 418.1). No samples were analyzed for heavy metals. Figure 2 presents sampling locations (yellow star) for the three Enviropro borings.

*Phase II Subsurface Investigation (Well Investigation Report, February 5, 1991, GeoSyntec Consultants.* Further testing in compliance with AB 1803--to evaluate if potential leakage or historical spillage could act as a source of groundwater contamination. Three borings were drilled to a total depth of 55 feet bgs, with samples taken at 5-foot intervals. One additional boring was drilled, with samples obtained at depths of 1, 5, and 10 feet bgs. Thus a total of 39 soil samples were taken. All were analyzed for VOCs using EPA 8010/8020, and TRPH using EPA 418.1. No metals analyses were performed. Figure 2 presents locations for these deep borings (see orange squares adjacent to former Enviropro borings).

*Subsurface Soil Assessment, February 19, 1993, Kleinfelder.* Purpose of investigation was to characterize and determine vertical and lateral extent of contamination in vicinity of borings from two previous investigations, and to assess if contamination could have occurred on other portions of the property. Twenty-five (25) soil vapor samples were analyzed at the sampling locations shown on Figures 2 and 3. Additionally, 8 soil borings were drilled: C-1 and C-2 were drilled from 55 to 105 feet bgs, and 50 to 130 bgs, respectively. Samples were collected at 5-foot intervals, all of which were analyzed for VOCs (EPA 8010/8020) and TRPH (EPA 418.1). No heavy metal analyses were performed. Similarly, locations C-3, C-4, C-5, C-6, and C-7 were drilled to various depths, with samples having been collected at various depths. Analyses were the same as above--EPA 8010/8020/418.1. No heavy metals analyses were performed.

## 3. CHROMIUM CHEMISTRY

Also enclosed with this response is a brief summary (from the National Safety Council) concerning the chemistry of chromium. Please note carefully that under the section entitled, "Chemical Properties," chromium is insoluble (and hence non-reactive) in the presence of nitric acid. Hence, hexavalent chromium cannot be formed when elemental chromium and nitric acid come in contact with each other.

Since Microdot vacated the premises many years ago, we can only surmise that the nitric acid bath was used for the treatment of copper-containing parts. It is unknown whether the objects being treated were fasteners, circuit boards, or something similar, but we are certain that chromium was *not* the metallic species being treated. To further corroborate this is the fact that two

Mr. Alex Lapostol  
August 2, 2004  
Page 4

of the Los Angeles County samples were analyzed for copper, the results of which showed concentrations of 64,500 and 12,200 mg/kg, respectively, demonstrating that *copper* was being solubilized by the nitric acid (see previous exhibit entitled, "Page 000045").

#### **Summary**

Investigations by Enviropro, GeoSyntec, and Kleinfelder were conducted from 1989 to 1993 in compliance with the RWQCB's search for VOCs. No heavy metal testing was performed by any of these three consultants. Thus, the only heavy metals data available for this site were from the 1984 Los Angeles County incident. Based on the narrative presented above, SCS believes that further investigations on this site for hexavalent chrome are not warranted.

However, as a contingency, an abbreviated workplan for confirmatory soil samples is presented.

#### **4. CONTINGENCY SOILS INVESTIGATION**

This section is offered should it be necessary to obtain confirmatory samples from the site. Figure 4 shows an enlarged section of the area that was found to be impacted during the 1984 Los Angeles County investigation.

Three soil borings are proposed in the proximal area of what is thought to be the area on which remediation activities occurred in 1984. Specifically, soil was removed to a depth of 3 feet below grade over an area of about 20 square feet. Clean fill was imported to bring the excavation back to finished grade.

Therefore, we propose obtaining two samples from each of the three borings at depths of 4 feet and 8 feet bgs, respectively. Samples will be retrieved using a geoprobe rig. Both ends of the sample tubes will be immediately capped, taped, and labeled. Samples will be chilled in the field to 4 °C and delivered to a state-certified laboratory within 24 hours. Standard chain-of-custody and decontamination procedures will be used for all samples. All samples will be analyzed for hexavalent chrome using EPA Method 7199, with a minimum detection level of 0.2 mg/kg. A technical report will be generated within 2 weeks of receiving the analyzed data.

Please feel free to call with any questions.

Very truly yours,



Kenneth V. LaConde  
Vice President  
SCS ENGINEERS

KVL/jml

cc: Mr. Ralph Woodhouse



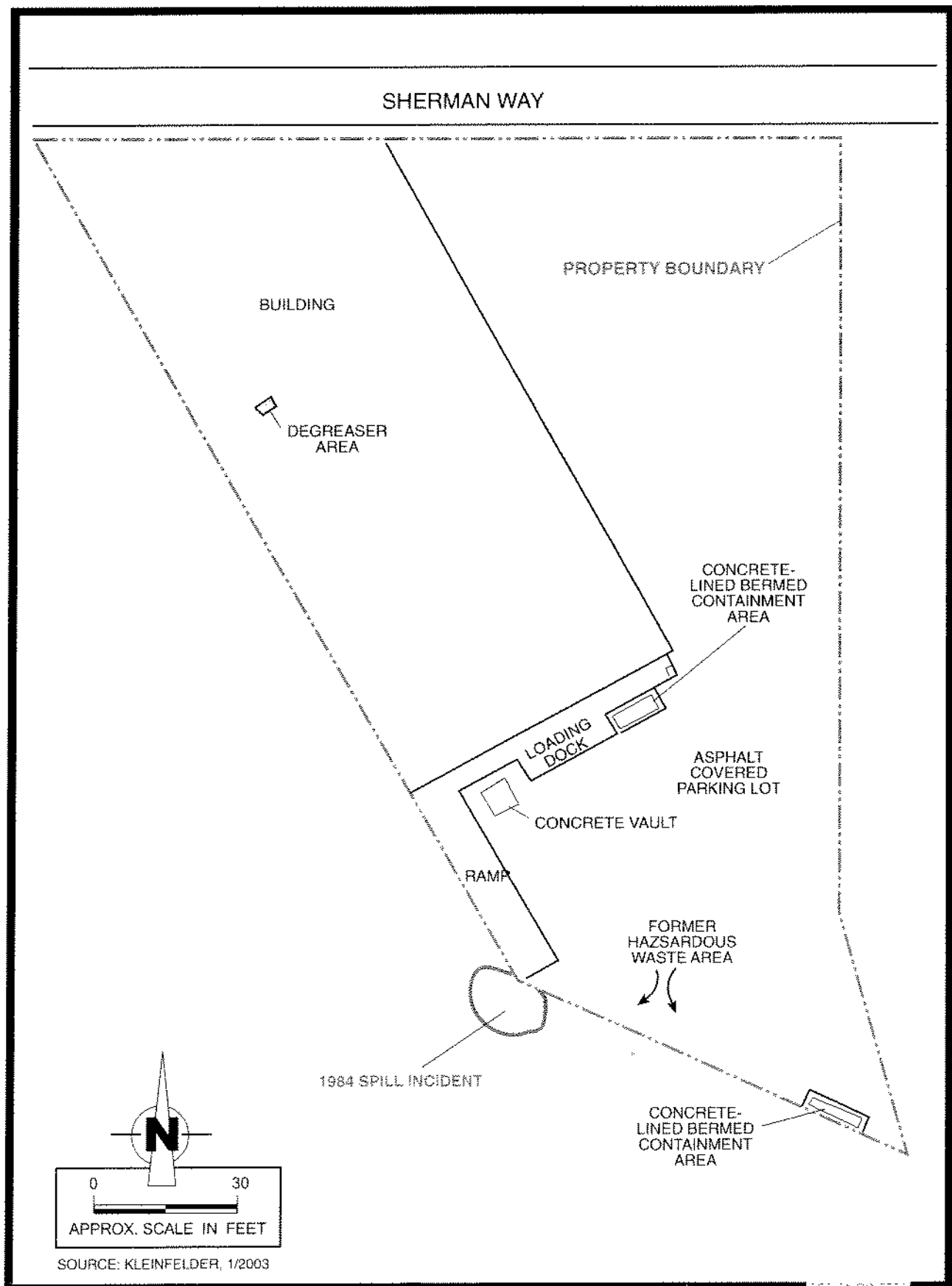


Figure 1. Map Showing Property Footprint and 1984 Spill Incident Area.

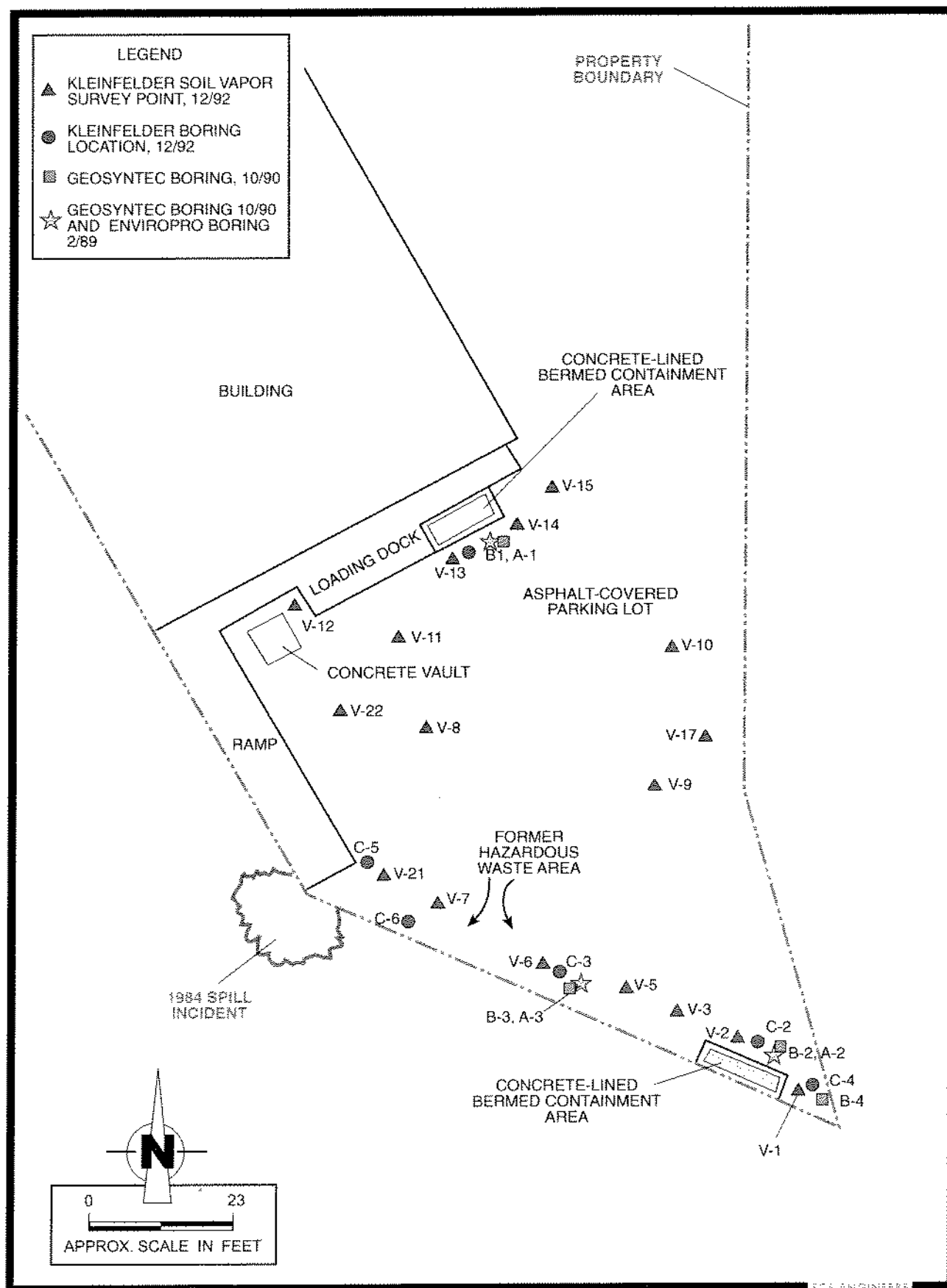


Figure 2. Sample Locations from Previous Investigations.

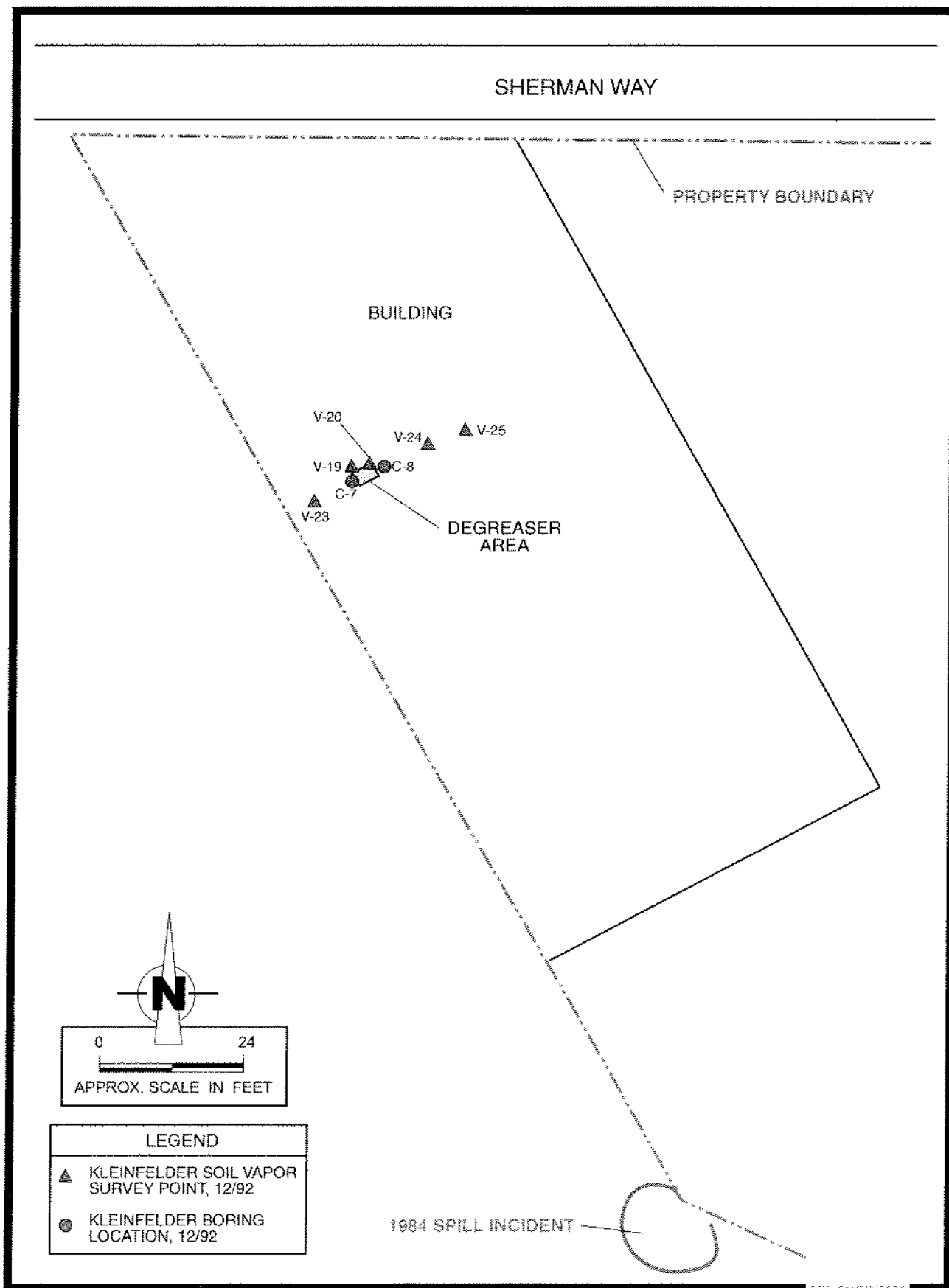


Figure 3. Building/Degreaser Area Samples Obtained by Kleinfelder, 1993.

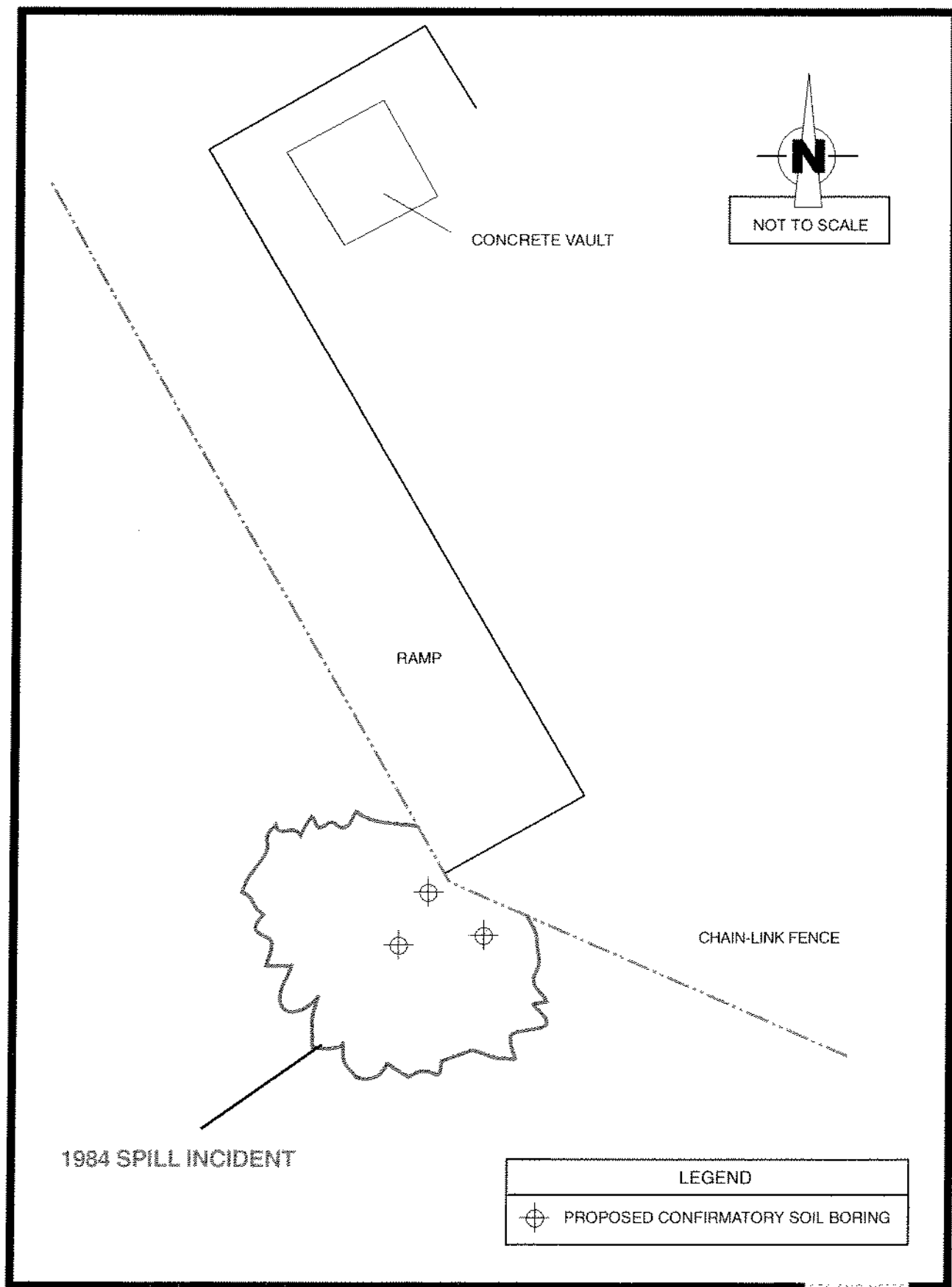


Figure 4. Expanded View of 1984 Spill Incident Area.

PAGE 000045

LOS ANGELES COUNTY ANALYTICAL DATA, 1984

SUMMARY OF SAMPLE DATA

<u>Sample #</u>	<u>Location</u>	<u>pH</u>	<u>Copper</u>	<u>Oil/Grease</u>	<u>Nitrate</u>
TW483-84	Liquid in pond, SW corner; offsite N of RR tracks (sludge)	4.1	64,500	-	4,100
TW484-84	Soil adjacent to pond; offsite at SW corner of fac	3.9	12,200	-	38,990
TW485-84	Liquid-nitric acid solu on ldg dock	0.6	4,730	-	920,000
TW486-84	Oil in open drum on ldg dock	-	-	88.8%	-
TW487-84	Soil-oil soaked area offsite W of ldg dock	8.2	5,340	12.7%	1,027
TW516-84	NW corner of main bldg-in vac lot background	6.1	23.3	1150ppm	28

Copper(Cu) TILC - 2500 mg/kg (ppm); all results in ppm  
 Nitrates given in mg/l

000045

PAGE 000002 TO 000004A

ANALYTICAL RESEARCH LABORATORIES DATA  
FOR SOIL SAMPLES, 1984

Mar 24 04 02:55p

Lab/Shipper  
Log Number

180 TAYLOR STREET, P.O. BOX 2380, MONROVIA, CALIFORNIA 91016

(818) 357-3247

64034

Client	Work Order	P. O. Number
Mercury Aerospace	5460-01	14054
Material/Sample Identity	Rec'd	Due
10 Soil Samples #1-6 and #1-4	6-7-84	6-21-84
Requested By	Sample Disposition	
Name: Mr. William Packard	Phone: (213) 982-4800	Expendable

## Report/Ship To:

Mr. William Packard  
Mercury Aerospace  
11800 Sherman Way  
North Hollywood, CA 91609

## Nature of Work and Information Desired

Analyze 10 Soil Samples for Metals and pH

1 Soil Sample for B/N Extraction

## Summary of Laboratory Report

Q. C. Level 2

The ten soil samples (identified on table 1) were digested with acid and analyzed for the 8 heavy metals on the California restricted list, plus ~~ces~~ and zinc. These results are given on table 2. Sample #3, surface, was extracted with methylene chloride and analyzed using gas chromatography/mass spectrometry for the EPA base/neutral compounds. These results are given in table 3.

All of the surface samples exceeded the limit for total copper, while only sample #3, surface exceeded the cadmium limit. No organic compounds other than aliphatic hydrocarbons were detected in sample #3, surface.

As a mutual protection to clients, this report is submitted for the exclusive use of the client to whom it is addressed. This report applies only to the sample(s) tested and is not necessarily indicative of the qualities of apparently similar or identical products. Use of this report, whether in whole or in part, or of any seals or insignia connected therewith, in any advertising or publicity matter, without prior written authorization is prohibited.

Analyst	Book - Page	Approved By	Date
RPM/DNB/RSF/GMB	327-21/328-11/322-54/280-51	<i>M. R. Hobbs</i>	13 July 1984
Research and Development		Testing	000002



Mar 24 04 02:55P

160 TAYLOR STREET, P.O. BOX 2360, MONROVIA, CALIFORNIA 91016

(818) 357-3247

Mercury Aerospace

Lab Log No. 64034  
13 July 1984

Table 1

Sample Identity

- |     |  |
|-----|--|
| 1.  | #1 Surface Path                          |
| 2.  | #2 3' Depth; Surface Path                |
| 3.  | #3 Surface - South side of pooling area  |
| 4.  | #4 3' Depth - South side of pooling area |
| 5.  | #5 Surface - North side of pooling area  |
| 6.  | #6 3' Depth - North side of pooling area |
| 7.  | Oil Soil #1 - Surface                    |
| 8.  | Oil Soil #2 - Depth 3'                   |
| 9.  | Oil Soil #3 - Surface                    |
| 10. | Oil Soil #4 - Depth 3'                   |

000003

Mercury Aerospace

Lab Log No. 64034  
13 July 1984

Table 2  
Metal Content of Soil Samples

Sample	Metal, mg/Kg					
	Arsenic	Copper	Cadmium	Chromium	Lead	Mercury
1	0.3	475.*	31.5	680.	48.	0.75
2	< 0.1	96.	1.5	9.0	5.0	0.14
3	0.4	650.*	38.	310.	30.	0.13
4	0.3	25.	0.8	13.4	8.0	0.12
5	1.2	1550.*	91.	750.	50.	0.21
6	0.7	25.	1.7	7.2	7.0	0.65
7	0.7	625.*	39.	320.	122.	0.15
8	< 0.1	11.	0.4	8.6	8.0	0.08
9	5.9	3700.*	220.*	1350.	76.	0.36
10	< 0.1	52.	4.8	16.9	8.0	1.15
Detection limit	0.1	1.	0.2	0.5	5.	0.03
CAM TTLC	500.	250.	100.	2500.	1000.	20.

	Nickel	Selenium	Thallium	Zinc	pH Units
1	375.	< 0.04	< 5.	215.	8.8
2	24.	< 0.04	< 5.	34.	5.7
3	270.	0.06	< 5.	180.	8.5
4	35.	0.10	< 5.	53.	7.9
5	612.	0.10	< 5.	360.	8.3
6	20.	< 0.04	< 5.	61.	7.5
7	221.	< 0.04	< 5.	450.	6.9
8	38.	< 0.04	< 5.	36.	8.1
9	1040.	< 0.04	13.	1600.	8.2
10	37.	< 0.04	< 5.	44.	6.6
Detection limit	5.	0.04	5.	0.1	
CAM TTLC	2000.	100.	700.	2500.	

\* Exceeds TTLC

CAM TTLC - California Assessment Manual for Hazardous Wastes - Total Threshold  
Limiting Concentration

000004

Mercury Aerospace

Lab Log No. 64034  
13 July 1984

Table 3

GC/MS Analyses of Sample #3 Surface

<u>Compound</u>	<u>Concentration, mg/kg</u>
C <sub>10</sub> -C <sub>12</sub> -Saturated hydrocarbons	5.
C <sub>14</sub> -Saturated hydrocarbons	0.02
C <sub>15</sub> -Saturated hydrocarbons (2)	0.08
C <sub>16</sub> -Saturated hydrocarbons (2)	0.07
C <sub>17</sub> -Saturated hydrocarbons	0.02
C <sub>20</sub> -C <sub>27</sub> -Saturated hydrocarbons	75.

000004-A

PAGE 000011

BKK INVOICE FOR DISPOSAL OF CONTAMINATED SOIL, 1984



## INVOICE

BKK CORPORATION CORPORATE OFFICES

- BKK LANDFILL
- FALCON REFUSE CENTER
- CHANCELLOR & OGDEN
- AP-TEC I & II
- BKK CO. OF NEVADA, INC.

INVOICE DATE 7-26-84

CUST #5050  
INVOICE NO. 26681

2550 237TH STREET • P. O. BOX 3038 • TORRANCE, CA 90510 • (213) 539-7150  
DISPATCHER & FACILITY LOCATION • 3031 EAST "T" STREET • WILMINGTON, CA 90741

SERVICE YARD • (213) 590-8531  
24 HR. SERVICE • (213) 432-8461

TO  
RAYNAR CORP  
BILL PACKARD  
800 S. STATE COLLEGE BLVD  
FULLERTON, CA 92668

P. O. NUMBER

COMMODITY SOLID REFUSE

86.70 TONS of contaminated soil @ 90.00/ton	\$ 7,803.00
15.14 TONS of crushed drums @ 120.00/ton	1,816.80
80.00 TONS of backfill @ 2.50/ton	200.00
18.00 TONS of weeds @ 4.00/ton	72.00

PUC REGULATIONS REQUIRE PAYMENT WITHIN 7 DAYS

TOTAL DUE \$ 9,891.80

A SERVICE FEE OF 14 PERCENT PER MONTH SHALL BE CHARGED ON ALL 30 DAYS PAST DUE ACCOUNTS. IN THE EVENT THIS ACCOUNT BECOMES DELINQUENT AND IT IS NECESSARY TO INSTITUTE LEGAL PROCEEDINGS, PURCHASER AGREES TO PAY REASONABLE ATTORNEY'S FEES AND COURT COSTS.

ALL TRUCK TIME RECORDED ON RECORDER TIME CLOCK INDICATING START, LOADING, TRAVEL AND STOP TIME. CHARTS FURNISHED UPON REQUEST.

ORIGINAL

000011

**RWQCB's NO FURTHER ACTION LETTER, MAY 18, 1993**



Environmental and Hazardous Waste Technology

inc.

Ralph Betsy Woodhouse  
80452 Via Cantabria  
San Juan Capistrano,  
Calif. 92675

FINAL REPORT FOR THE PHASE I  
SUBSURFACE INVESTIGATION

Conducted at:

Mercury Aerospace Fasteners  
11800 Sherman Way  
North Hollywood, CA 91609-9759

Prepared for:

Mr. Jerome Flament  
Marketing Manager  
Mercury Aerospace Fasteners  
11800 Sherman Way  
North Hollywood, CA 91609-9759

May 1, 1989

Enviropro, Inc., Project No. 35401

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4.0	DRILLING AND SOIL SAMPLING RESULTS . . . . .	3
5.0	CONCLUSIONS . . . . .	3

### APPENDICES:

Appendix A:	Test Boring Logs
Appendix B:	Copy of Original Chain of Custody Record and Laboratory Reports

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### List of Drawings

Drawing 1:	Test Boring Location . . . . .	2
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## 1.0 EXECUTIVE SUMMARY

A subsurface investigation was performed by Enviropro, Inc. at Mercury Aerospace Fasteners, located at 11800 Sherman Way in North Hollywood, California. The investigation was requested by the California Regional Water Quality Control Board, Los Angeles Region, to comply with AB-1803 Follow-Up Program, Phase I.

The investigation was conducted on 2/17/89 and involved the drilling of three test borings. Results of the drilling, soil sampling, and chemical analyses indicate that soil in the area of Borings A2 and A3-A contains petroleum hydrocarbons at concentrations up to 144 ppm. Purgeable halocarbon levels are also detected at the three locations.

## 2.0 INTRODUCTION

The subject site is located at 11800 Sherman Way in North Hollywood, California.

On February 17, 1989, three test borings were drilled at locations shown on Drawing 1. The test borings were drilled to a depth of 10 feet and soil samples were collected at depths of 1', 6' and 10' in boring A1 and at 1', 5' and 10' in borings A2 and A3A.

Results of the soil sampling and analyses conducted indicate the presence of petroleum hydrocarbons and purgeable halocarbons in the environment.

This report discusses the results of the subsurface investigation conducted by Enviropro, Inc. at the above-referenced site.

## 3.0 ENVIROPRO, INC. DRILLING AND SOIL SAMPLING PROCEDURES

All drilling was accomplished using an 8-inch hollow stem auger drilling rig. Soil samples were obtained using a split spoon sampler and a standard 140-pound hammer with a 30-inch drop. After each sample was obtained, the split spoon and sampling tubes were cleaned using steam at 350°F and rinsed with distilled, deionized water to eliminate the possibility of cross-contamination between sampling intervals. After each borehole was drilled, all augers, split spoons and sampling tubes were steam cleaned as described above to prevent cross-contamination between borings.

During the drilling operation, a Photovac TIP II photoionization detector was used to obtain readings of volatile hydrocarbons to be used for qualitative evaluation of the soil samples. These readings are included in the boring logs. All soil samples designated for chemical

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analysis were retained inside the stainless steel sampling tubes during retrieval. The ends of each tube were tightly sealed with a sheet of teflon tape and a polyethylene cap. The tubes were then placed inside a ziplock plastic bag. A soil sampling label was placed on the outside of each bag and the bagged samples with labels were placed inside a second ziplock plastic bag.

All prepared soil samples were immediately placed on ice inside a styrofoam cooler, and stored under refrigeration for delivery to a state-certified laboratory for chemical analysis.

#### 4.0 DRILLING AND SOIL SAMPLING RESULTS

On February 17, 1989, three test borings were drilled to a depth of 10 feet at the locations shown on Drawing 1. The boring logs are included in Appendix A.

Soil samples were collected at 1', 6' and 10' at boring A1 and at 1', 5' and 10' in borings A2 and A3A. The samples were transported as per EPA protocol to American Analytics, a state-certified laboratory for chemical analysis. All samples collected were analyzed for Halogenated Volatile Organics, Aromatic Volatile Organics, and Total Recoverable Petroleum Hydrocarbons (TPH) using EPA Methods 8010, 8020, and 418.1, respectively.

The chain-of-custody record and laboratory reports with QA/QC data for this investigation, are included in Appendix B.

Table 4.1 summarizes results for the chemical analyses conducted on soil samples collected at 11800 Sherman Way, North Hollywood, California.

#### 5.0 CONCLUSIONS

Laboratory data indicate that TPH concentrations at the one-foot depth in borings A2 and A3A are 144 ppm and 108 ppm respectively. These concentrations appear to be restricted to the near surface at both locations because TPH levels decrease below 100 ppm at greater depth. TPH concentrations are not detected below six feet in boring A1. The TPH found in shallow depths near the surface may be attributable to asphalt fractions mobilized by other solvents and/or rain water.

Aromatic volatile compounds are present in low concentrations at boring locations A1 and A3A. Benzene is detected at the one-foot depth in boring A1 at a concentration of 2.7 ppb.

Purgeable halocarbons are detected at all three locations. The highest concentration detected (55.2 ppb) is in boring A2 at the one-foot depth. Concentrations of 1,1-Dichloroethylene in boring A1 range from 8.4 ppb to 29.3 ppb at depths of one foot and ten feet, respectively. Other chlorinated volatile compounds detected at the site include 1,1,1-Trichloroethane, Tetrachloroethylene and Trichloroethylene.

APPENDIX A  
Test Boring Logs

TABLE 4.1

Summary of Results of Chemical Analysis  
on Soil Samples Collected at  
Mercury Aerospace Fasteners  
11800 Sherman Way, North Hollywood, California

EPA Test Method	Boring Numbers and Sample Depths								
	A1			A2			A3A		
	1'	6'	10'	1'	5'	10'	1'	5'	10'
<u>418.1 (mg/kg)</u>									
<u>TPH</u>	<u>16.4</u>	<u>26.2</u>	n.d.	<u>144</u>	<u>16.4</u>	<u>16.4</u>	<u>108</u>	<u>16.4</u>	<u>13.1</u>
<u>8020 (mcg/kg)</u>									
<u>Benzene</u>	<u>2.7</u>	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
<u>Toluene</u>	<u>4.8</u>	<u>2.9</u>	n.d.	n.d.	n.d.	n.d.	<u>3.0</u>	<u>2.4</u>	<u>2.0</u>
<u>Ethyl Benzene</u>	<u>3.4</u>	<u>2.3</u>	<u>3.0</u>	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
<u>Total Xylenes</u>	<u>13.1</u>	<u>8.2</u>	<u>6.2</u>	n.d.	n.d.	n.d.	<u>7.5</u>	<u>6.4</u>	<u>4.5</u>
<u>8010 (mcg/kg)</u>									
<u>1,1,-Dichloro-ethylene</u> <i>DE</i>	<u>8.4</u>	<u>8.8</u>	<u>29.3</u>	<u>55.2</u>	n.d.	n.d.	<u>8.3</u>	<u>5.6</u>	<u>3.2</u>
<u>1,1,1-Trichloro-ethane</u> <i>TEA</i>	<u>12.3</u>	<u>2.0</u>	n.d.	<u>61.2</u>	n.d.	n.d.	<u>1.1</u>	n.d.	n.d.
<u>Tetrachloro-ethylene</u> <i>PCE</i>	n.d.	n.d.	n.d.	<u>24.3</u>	n.d.	n.d.	n.d.	n.d.	n.d.
<u>Trichloro-ethylene</u> <i>TCE</i>	n.d.	n.d.	n.d.	n.d.	<u>4.3</u>	n.d.	n.d.	n.d.	n.d.

n.d. = none detected

Only detected pollutants are shown in table.

Field Drilling Record of Boring # A1 Page 1 of 1

Project Name: Mercury Aerospace Project No. 35401  
Location: 11800 Sherman Way, North Hollywood, California  
Date: February 16, 1989  
Field Geologist: Charles Schwarz  
Drilling Co. Datum Exploration  
Drilling Technique: Hollow Stem Auger Diameter: 7"  
Sampler: 1.5 Standard Penetrometer  
Checked by Geologist: H. Kues License No.: EG 264  
Authorized Signature: Charles Schwarz #4624 RC

\*\*\*\*\*  
Depth of Sample Blow Description (Color, Moisture,  
Sample C=Chem. Count Grain Size, Sorting, etc.)  
(Ft.) G=Geo. per 6"  
\*\*\*\*\*

1	C,G	12-6-9	Dark yellowish-brown very fine sand, well-sorted, but occasional small pebble, loose, damp. PID = 32
5	G	5-5-5	Moderate yellowish-brown, coarse sand, ill-sorted, 10% granules and pebble gravel, no silt, loose, damp. PID = 33
6	C,G	3-5-5	Moderate yellowish-brown fine to medium sand, ill-sorted, 15% coarser grains, some silt, loose to some friable clusters, damp. PID = 43
10	C,G	---	Same as previous, but no silt and an occasional pebble. PID = 39

END OF HOLE

Notes:

1. No ground water encountered.
2. Hole backfilled with spoils and tamped.

Field Drilling Record of Boring # A2 Page 1 of 1

Project Name: Mercury Aerospace Project No. 35401  
Location: 11800 Sherman Way, North Hollywood, California  
Date: February 16, 1989  
Field Geologist: Charles Schwarz  
Drilling Co. Datum Exploration  
Drilling Technique: Hollow Stem Auger Diameter: 7"  
Sampler: 1.5 Standard Penetrometer  
Checked by Geologist: H. Kues License No.: EG 264  
Authorized Signature: Charles Schwarz #4634 RG

\*\*\*\*\*

Depth of Sample (Ft.)	Sample C=Chem. G=Geo.	Blow Count per 6"	Description (Color, Moisture, Grain Size, Sorting, etc.)
1	C,G	4-5-5	Dark yellowish-brown silty sand, very ill-sorted, some pebble gravel, loose to slightly friable, damp. PID = 39
5	C,G	3-4-6	Moderate yellowish-brown fine sand, ill-sorted, loose, damp. PID = 42
10	C,G	12-9-10	Pale yellowish-brown coarse sand, ill-sorted, 15% coarser fragments to pebble size, 20% finer grained, no silt, loose, damp. PID = 39

END OF HOLE

Notes:

1. No ground water encountered.
2. Hole backfilled with spoils and tamped.



Field Drilling Record of Boring # A3A Page 1 of 1

Project Name: Mercury Aerospace Project No. 35401  
Location: 11800 Sherman Way, North Hollywood, California  
Date: February 16, 1989  
Field Geologist: Charles Schwarz  
Drilling Co. Datum Exploration  
Drilling Technique: Hollow Stem Auger Diameter: 7"  
Sampler: 1.5 Standard Penetrometer  
Checked by Geologist: H. Kues License No.: EG 264  
Authorized Signature: Charles Schwarz #4624 AC

\*\*\*\*\*

Depth of Sample (Ft.)	Sample C=Chem. G=Geo.	Blow Count per 6"	Description (Color, Moisture, Grain Size, Sorting, etc.)
1	C,G	4-4-5	Dark yellowish-brown silty fine sand, well-sorted, loose to friable, damp. PID = 46
5	C,G	5-3-3	Moderate yellowish-brown fine to medium sand, ill-sorted, some silt, loose to some friability, damp. PID = 39
10	C,G	---	Moderate yellowish-brown medium to coarse sand, well-sorted, few pebbles, loose, damp. PID = 6.5

END OF HOLE

Notes:

1. No ground water encountered.
2. Hole backfilled with spoils and tamped.

APPENDIX B

Copy of Original Chain-of-Custody Record  
and Laboratory Reports

Project No. 35401 Client Mercury Aerospace

*Charles Schuurs*

Sample Number Date Time Depth Below Grade Sample Type Suspected Contaminant

6	A1-1	2/16/89	1047	1'	Soil	
7	A1-6	2/16/89	1117	6	Soil	
8	A1-10	2/16/89	1124	10	Soil	
9	A2-1	2/16/89	1135	1	Soil	
10	A2-5	2/16/89	1145	5	Soil	
1	A2-10	2/16/89	1155	10	Soil	
2	A3A-1	2/16/89	1230	1	Soil	
3	A3A-5	2/16/89	1250	5	Soil	
4	A3A-10	2/16/89	1300	10	Soil	

ANALYSIS REQUIRED

EPA 8010  
EPA 8020  
418-1

Instructions/  
Comments

*Analyses must meet  
EPA Pol's of 5 to  
10 ppb for VOC's.  
CGS*

SAMPLE IMPURITY- TO BE FILLED BY RECEIVING LAB

Samples Intact Yes ☐ No ☐  
 Samples Properly Cooled Yes ☐ No ☐  
 Samples Accepted Yes ☐ No ☐  
 If Not, Why \_\_\_\_\_

Samples Placed in Lab Refrigerator Prior To Analysis

Yes ☐ No ☐

ENVIRONMENTAL, INC. P.O. # 1574- P35401

ENVIRONMENTAL, INC. Project Personnel:

Relinquished by: <i>Charles Schuurs</i>	Date: 2/17/89	Received by: <i>Joe Kneel</i>
Relinquished by:	Date: /	Received by:
Relinquished by:	Date: /	Received by:

RECEIVED MAR 17 198

AMERICAN ANALYTICS  
9765 Eton Avenue  
Chatsworth, CA 91311  
(818) 998-7197  
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.  
Project No.: 35401  
Project Name: Mercury Aerospace  
Sample Matrix: Soil  
Method: EPA 418.1

DOHS Certified #: 265  
Date Received: 2/17/89  
Units: mg/Kg  
Date Reported: 2/28/89

Compounds		Results	Detection Limits
Total Recoverable Petroleum Hydrocarbons			
<u>AA ID#</u>	<u>Client ID#</u>		
9-0196	A1-1	16.4	10
9-0197	A1-6	26.2	10
9-0198	A1-10	n.d.	10
9-0199	A2-1	144	10
9-0200	A2-5	16.4	10
9-0201	A2-10	16.4	10
9-0202	A3A-1	108	10
9-0203	A3A-5	16.4	10
9-0204	A3A-10	13.1	10

n.d. = none detected

  
Ek Han Kwee, Ph.D.  
Technical Director

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Chatsworth, CA 91311  
(818) 998-7197  
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.  
Project No.: 35401  
Project Name: Mercury Aerospace  
Sample Matrix: Soil  
Method: EPA 8010

DOHS Certified #: 265  
Date Received: 2/17/89  
Units: mcg/Kg  
Date Reported: 2/28/89

AA ID#	Client ID	Compounds	Results
9-0196	A1-1	1,1-Dichloroethylene	8.4
		1,1,1-Trichloroethane	12.3
9-0197	A1-6	1,1-Dichloroethylene	8.8
		1,1,1-Trichloroethane	2.0
9-0198	A1-10	1,1-Dichloroethylene	29.3
9-0199	A2-1	1,1-Dichloroethylene	55.2
		1,1,1-Trichloroethane	61.2
		Tetrachloroethylene	24.3
9-0200	A2-5	Trichloroethylene	4.3
9-0201	A2-10	n.d.	

n.d. = none detected

  
Ek Han Kwee, Ph.D.  
Technical Director

RECEIVED MAR 17 19

AMERICAN ANALYTICS  
9765 Eton Avenue  
Chatsworth, CA 91311  
(818) 998-7197  
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.  
Project No.: 35401  
Project Name: Mercury Aerospace  
Sample Matrix: Soil  
Method: EPA 8010

DOHS Certified #: 265

Date Received: 2/17/89

Units: mcg/Kg

Date Reported: 2/28/89

AA ID#	Client ID	Compounds	Results
9-0202	A3A-1	1,1-Dichloroethylene	8.3
		1,1,1-Trichloroethane	1.1
9-0203	A3A-5	1,1-Dichloroethylene	5.6
9-0204	A3A-10	1,1-Dichloroethylene	3.2

n.d. = none detected

  
Ek Han Kwee, Ph.D.  
Technical Director

AMERICAN ANALYTICS  
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Chatsworth, CA 91311  
(818) 998-7197  
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.  
Project No.: 35401  
Project Name: Mercury Aerospace  
Sample Matrix: Soil  
Method: EPA 8010, QC  
Dilution Factor: 2.5

DOHS Certified #: 265  
Date Analyzed: 2/24/89  
Client ID#: N/A  
Units: %  
Date Reported: 2/28/89  
AA ID#: N/A

Compounds	Spike Recovery	Acceptance Criteria
Chloromethane	---	D - 193
Vinyl chloride	97	28 - 163
Bromomethane	101	D - 144
Trichlorofluoromethane	62	21 - 156
1,1-Dichloroethylene	92	28 - 167
Methylene chloride	81	25 - 162
trans-1,2-Dichloroethylene	97	38 - 155
1,1-Dichloroethane	96	47 - 132
Chloroform	45 LOW	49 - 133
1,1,1-Trichloroethane	81	41 - 138
Carbon tetrachloride	92	43 - 143
1,2-Dichloroethane	92	51 - 147
Trichloroethylene	80	35 - 146
1,2-Dichloropropane	91	44 - 156
Bromodichloromethane	92	42 - 172
2-Chloroethyl vinyl ether	94	14 - 186
trans-1,3-Dichloropropylene	96	22 - 178
1,1,2-Trichloroethane	96	39 - 136
Tetrachloroethylene	88	26 - 162
Chlorobenzene	96	38 - 150
1,1,1,2-Tetrachloroethane	92	8 - 184
Bromoform	92	13 - 159
1,3-Dichlorobenzene	99	7 - 187
1,4-Dichlorobenzene	95	42 - 143
1,2-Dichlorobenzene	93	D - 208

Duplicate was run on sample #9-0209

"D" = Detected

  
Ek Han Kwee, Ph.D.  
Technical Director

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Chatsworth, CA 91311  
(818) 998-7197  
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropo, Inc.  
Project No.: 35401  
Project Name: Mercury Aerospace  
Sample Matrix: Soil  
Method: EPA 8020

DOHS Certified #: 265  
Date Received: 2/17/89  
Units: mcg/Kg  
Date Reported: 2/28/89

AA ID#	Client ID	Compounds	Results
9-0196	A1-1	Benzene	2.7
		Toluene	4.8
		Ethyl Benzene	3.4
		Total Xylenes	13.1
9-0197	A1-6	Toluene	2.9
		Ethyl Benzene	2.3
		Total Xylenes	8.2
9-0198	A1-10	Ethyl Benzene	3.0
		Total Xylenes	6.2

n.d. = none detected

  
Ek Han Kwee, Ph.D.  
Technical Director



RECEIVED MAR 17 1989

AMERICAN ANALYTICS  
9765 Eton Avenue  
Chatsworth, CA 91311  
(818) 998-7197  
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.  
Project No.: 35401  
Project Name: Mercury Aerospace  
Sample Matrix: Soil  
Method: EPA 8020

DOHS Certified #: 265  
Date Received: 2/17/89  
Units: mcg/Kg  
Date Reported: 2/28/89

AA ID#	Client ID	Compounds	Results
9-0199	A2-1	n.d.	
9-0200	A2-5	n.d.	
9-0201	A2-10	n.d.	
9-0202	A3A-1	Toluene	3.0
		Total Xylenes	7.5
9-0203	A3A-5	Toluene	2.4
		Total Xylenes	6.4
9-0204	A3A-10	Toluene	2.0
		Total Xylenes	4.5

n.d. = none detected

  
Ek Han Kwee, Ph.D.  
Technical Director

AMERICAN ANALYTICS  
9765 Eton Avenue  
Chatsworth, CA 91311  
(818) 998-7197  
FAX (818) 998-7258

LABORATORY ANALYSIS RESULTS

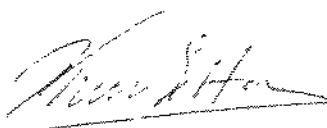
Client: Enviropro, Inc.  
Project No.: 35401  
Project Name: Mercury Aerospace  
Sample Matrix: Soil  
Method: EPA 8020, QC  
Dilution Factor: 2.5

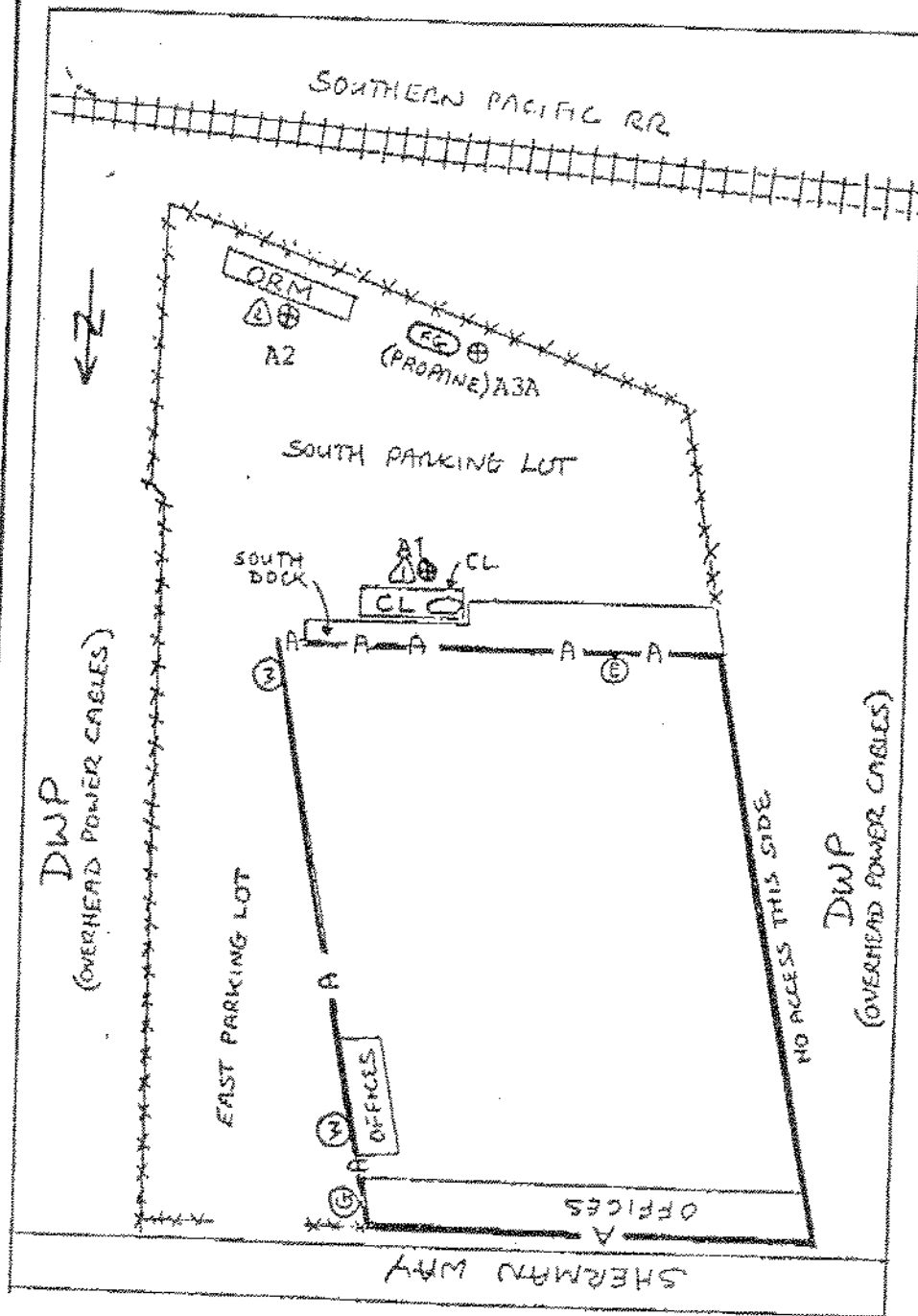
DOHS Certified #: 265  
Date Analyzed: 2/24/89  
Client ID#: N/A  
Units: %  
Date Reported: 3/21/89  
AA ID#: N/A

Compounds	Spike Recovery	Acceptance Criteria
Benzene	109	39 - 150
Chlorobenzene	94	55 - 135
1,2-Dichlorobenzene	70	37 - 154
1,3-Dichlorobenzene	42	50 - 141
1,4-Dichlorobenzene	35	42 - 143
Ethylbenzene	104	32 - 160
Toluene	88	46 - 148

) LOW

Duplicate was run on sample #9-0209

  
Ek Han Kwee, Ph.D.  
Technical Director



ENVIROPRO, INC.

9765 Eton Ave., Chatsworth, CA 91311

DESIGNED BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_ APPROVED BY: R.W.

DATE: 11/28/88

PROJ. NO.: 35401

MERCURY AEROSPACE FASTENERS

11800 SHERMAN WAY, AL. HOLYWOOD

Drawn By: J. Tim R. \_\_\_\_\_

# Legend

1 Containment Area No. 1

2 Containment Area No. 2

3 Test Boring Locations

DOCUMENT

Ralph Belay Woodhouse  
FX-6 Personal Privacy

## REPORT

# PHASE II SUBSURFACE INVESTIGATION (WELL INVESTIGATION REPORT)

AT

## MERCURY AEROSPACE FASTENERS NORTH HOLLYWOOD, CALIFORNIA

Prepared for:

Mercury Aerospace Fasteners  
11800 Sherman Way  
North Hollywood, California 91609-9759

Prepared by:

GeoSyntec Consultants  
(formerly GSI Environmental)  
16541 Gothard Street, Suite 211  
Huntington Beach, California 92647  
(714) 843-6866

5 February 1991

GeoSyntec Consultants Project Number P1590

91 OCT 21 PM 12:40

TABLE OF CONTENTS (Continued)

6. INTERPRETATION OF RESULTS AND CONCLUSIONS

REFERENCES AND BIBLIOGRAPHY

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APPENDIX B: Logs of Test Borings

APPENDIX C: Laboratory Results

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GeoSyntec Consultants [1990]

LIST OF TABLES

TABLE 2-1: Summary of Results of Chemical Analyses On Soil Samples  
Collected at Mercury Aerospace Fasteners [Enviropro, 1989]

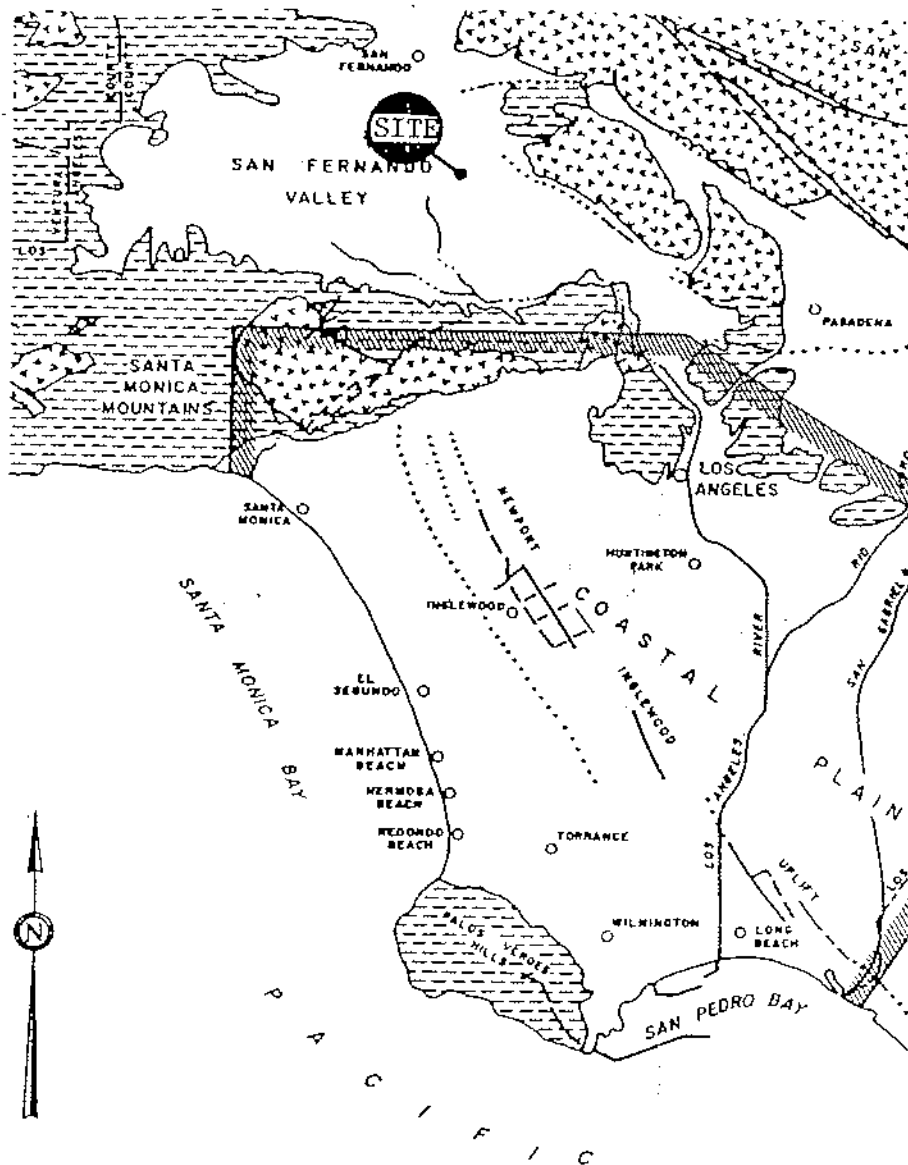
TABLE 5-1: Summary of Results of Chemical Analyses Conducted On Soil  
Samples from Test Boring B1

TABLE 5-2: Summary of Results of Chemical Analyses Conducted On Soil  
Samples from Test Boring B2








TABLE 5-3: Summary of Results of Chemical Analyses Conducted On Soil  
Samples from Test Boring B3

TABLE 5-4: Summary of Results of Chemical Analyses Conducted On Soil  
Samples from Test Boring B4

- In Section 6, interpretations of the field and laboratory data collected thus far are presented along with conclusions.



#### LEGEND

-  ALLUVIUM AND ASSOCIATED DEPOSITS OF RECENT OR PLEISTOCENE AGE
-  SEDIMENTARY ROCKS OF MARINE ORIGIN, MAINLY TERTIARY WITH SOME CRETACEOUS
-  CRYSTALLINE AND METAMORPHIC ROCKS, JURASSIC OR OLDER, SOME TERTIARY ROCKS
-  BOUNDARY OF INVESTIGATIONAL AREA
-  KNOWN FAULTS
-  INFERRED FAULT
-  CONCEALED FAULTS

SITE LOCATION MAP  
MERCURY AEROSPACE FASTENERS  
NORTH HOLLYWOOD, CALIFORNIA  
DECEMBER 1990

(after CDWR, 1961)



**GEOSYNTEC CONSULTANTS**

FIGURE NO.	2-1
PROJECT NO.	P1590
DOCUMENT NO.	C90052
PAGE NO.	4

TABLE 2-1

Summary of Results of Chemical Analyses  
on Soil Samples Collected at  
Mercury Aerospace Fasteners  
North Hollywood, California  
December 1990  
After Enviropro [1989]

EPA Test Method	Boring Numbers and Sample Depths									
	A1		A2		A3A		A3B		A3C	
	1'	6'	10'	1'	5'	10'	1'	5'	10'	1'
<u>418.1 (mg/kg)</u>										
TPH	16.4	26.2	ND	144	16.4	16.4	108	15.4	13.1	
<u>8020 (mcg/kg)</u>										
Benzene	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	4.8	2.9	ND	ND	ND	ND	3.0	2.4	2.0	
Ethyl Benzene	3.4	2.3	3.0	ND	ND	ND	ND	ND	ND	ND
Total Xylene	13.1	8.2	6.2	ND	ND	ND	7.5	6.4	4.5	
<u>8010 (mcg/kg)</u>										
1,1,-Dichloroethylene	8.4	8.8	29.3	55.2	ND	ND	8.3	5.6	3.2	
1,1,1-Trichloroethane	12.3	2.0	ND	61.2	ND	ND	1.1	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	24.3	ND	ND	ND	ND	ND	ND
Trichloroethylene	ND	ND	ND	ND	4.3	ND	ND	ND	ND	ND

ND = Not Detected.



## Task 2: Field Exploration

Task 2 consisted of:

- drilling four test borings at the selected locations to depths of approximately 55 ft (17 m),
- collecting soil samples from each test boring at 5 ft (1.5 m) depth intervals or at changes in lithology,
- recording test boring logs,
- backfilling the test borings with bentonite grout, and
- placing soil cuttings in labelled 55-gallon (210-liter) drums.

## Task 3: Laboratory Analytical Testing

Task 3 included:

- transporting the soil samples to an analytical laboratory, and
- performing the chemical analyses on the soil samples.

## Task 4: Report

Task 4 consisted of preparing a report summarizing the data obtained during the field exploration and laboratory testing program and presenting discussions, interpretations, and conclusions.

A detailed description of each work task was provided in the work plan dated 11 May 1990 and submitted to MAF by GeoSyntec Consultants [GeoSyntec Consultants, 1990]. This work plan was approved by Mr. David Bacharowski of the CRWQCB in a letter dated 16 May 1990 (See CRWQCB letter dated 16 May 1990, included in Appendix A).

#### 4. FIELD INVESTIGATION

##### 4.1 Site Health and Safety Plan

Prior to the start of field work, a site-specific health and safety plan was prepared by GeoSyntec Consultants. This plan was prepared in accordance with Occupational Safety and Health Administration (OSHA) regulations [Federal Register, December 19, 1986, Part 1910.120]. The plan covered: site characterization, site control, training, medical monitoring, personal protective equipment, field monitoring, material handling, emergency response, and subcontractors. Personnel participating in the field activities had received the required health and safety training. A health and safety meeting was held prior to the start of field activities.

##### 4.2 Test Boring Procedures

###### 4.2.1 Locations of Test Borings

Three test borings (B1, B2, and B3) are located within 3 ft (1 m) of Test Borings A1, A2, and A3A, respectively, drilled in 1989 by Enviropro [1989]. Test Boring B4 was located east of the southernmost containment area, as requested by the CRWQCB. The locations of Test Borings B1, B2, B3, and B4, drilled by GeoSyntec Consultants, are shown in Figure 4-1. The locations of Test Borings A1, A2, and A3A, previously drilled by Enviropro [1989] and Test Borings B1, B2, B3, and B4 are shown in Figure 4-2. Locations of all test borings were approved on site by Ms. Laurie Morgan of the CRWQCB who partially monitored field activities (See CRWQCB letter dated 22 December 1989 included in Appendix A).

#### 4.2.2 Test Boring Drilling

Test Borings B1, B2, and B3 were drilled on 24 and 25 November 1990 to depths of 55 ft (17 m). Test Boring B4 was hand-augered to a depth of 10 ft (3 m). To reduce the risk of disrupting underground features, the first 5 ft (1.5 m) of Test Borings B1, B2, and B3 were advanced using a 3.25 in.- (8.3 cm-) diameter hand auger. Following hand augering, the test borings were drilled using a truck-mounted B61 drill rig with continuous flight hollow stem 6 in.- (15 cm-) diameter augers. The augers were steam-cleaned between each test boring to minimize the possibility of cross-contamination between test borings. Soil cuttings were contained in 55 gallon (210 liter) drums, and stored on-site for subsequent handling by MAF. Each drum was labelled with the test boring number, the depth range, and the content description. Test borings were backfilled with a 22%-by-weight bentonite grout mixture. A cement grout was used to fill up the top of Test Borings B1 and B2 which had subsided approximately 7 ft (2.1 m). A patch of asphalt was then placed to cover each test boring.

#### 4.2.3 Soil Sampling

Soil samples were collected from each test boring every 5 ft (1.5 m). Sample collection started at a depth of 10 ft (3 m) in Test Borings B1, B2, and B3. Soil samples were collected by driving a split-barrel sampler into the soil. The split-barrel sampler had a 3 in.- (7.6 cm-) outside diameter and was equipped with 2.5 in.- (6.4 cm-) outside diameter, 6 in. (15 cm) long brass liners. Samples were collected at depths of 1, 5, and 10 ft (0.3, 1.5, and 3.0 m) in Test Boring B4. Samples were collected using a hand sampler containing one 2 in.- (5 cm-) diameter and 6 in.- (12 cm-) long brass liner. Before each sampling event, the sampler and liners were washed with an Alconox<sup>TM</sup> solution, rinsed twice with tap water, and then rinsed with deionized water to limit the potential for cross-contamination between sampling events. Three soil samples were collected at each sampling depth, provided that the sample recovery was sufficient. One sample was collected for

laboratory chemical analysis, one sample was archived, and the third sample was observed on-site for soil classification purposes. A sample of the deionized water used to wash the sampler and brass liners prior to sampling events was also sent to the laboratory for chemical analyses.

Brass liners were sealed with aluminum foil and plastic end caps and taped on the ends with duct tape to minimize volatilization of potentially present volatile organic compounds. Samples were labeled, sealed with custody tags, wrapped in a Ziplock<sup>TM</sup> plastic bag, and placed in an ice chest containing blue ice for transport to a laboratory certified by the California Department of Health and Safety, following proper chain-of-custody procedures. A custody tag was also placed on each ice chest.

#### 4.2.4 Soil Logging

Test borings were continuously logged in the field by a GeoSyntec Consultants geotechnical engineer or geologist using the Unified Soil Classification System in general accordance with American Society for Testing and Materials (ASTM) Method D2488 [1990]. Sample number, sampling depth, sample recovery, blow count, sample description, and other pertinent information were recorded on boring logs.

#### 4.3 Test Boring Results

Logs of the test borings drilled by GeoSyntec Consultants at the MAF facility are presented in Appendix B. The subsurface is predominantly composed of yellowish brown, slightly moist, fine to coarse sands with silt. The contacts between layers of coarse and fine sands seem to be gradational. Gravels and cobbles up to 5 in. (12.7 cm) in diameter were regularly encountered in the test borings and resulted in difficulties to recover samples. The mineralogic composition of the observed gravels and cobbles suggests igneous or metamorphic source rocks. Such rocks exist in the nearby Santa Monica and San Gabriel mountains. The logs of Test Borings B1 and B2 also indicate the presence of thin, discontinuous

## 5. LABORATORY CHEMICAL ANALYSIS

### 5.1 Chain of Custody Procedures

To assure custody of the samples during collection, transport, and shipping, each sample was labelled and recorded in a chain of custody record. A custody tag was also placed on each sample. Sample number and depth, sample type, container type, sampling data, and required analysis was recorded on the chain of custody. The chain of custody forms were signed and dated by the GeoSyntec Consultants sampler. Samples were considered to be in custody when the samples were in actual possession, in view, or in a locked area.

### 5.2 Laboratory Selection and Testing Methods

Soil samples were transported within two days following collection to Curtis and Tompkins Ltd., a chemical laboratory certified by the California Department of Health Services. The laboratory QA/QC program included provisions for:

- laboratory organization;
- sample management;
- analytical methodology;
- analytical performance;
- instrument calibration;
- soil sample analysis;
- water sample trip blank supply;
- laboratory QA/QC definitions and calculations;
- corrective action procedures;
- laboratory data collection and storage requirements;
- sample requirements;
- sample handling; and
- documentation.

TABLE 5-2  
Summary of Results of Chemical Analyses Conducted  
on Soil Samples Collected from Test Boring B2  
Mercury Aerospace Fasteners  
North Hollywood, California  
December 1990

Depth (ft)		1	5	10	15	20	25	30	35	40	45	50	55
Compound (units)													
TRPH (ppm)	144*	16*	16*/ND	ND	23	ND	ND	ND	ND	26	17	21	880
DCE (ppb)	55*	ND*	ND*/ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TCA (ppb)	61*	ND*	ND*/ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6
PCE (ppb)	24*	ND*	ND*/ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TCE (ppb)	ND*	4*	ND*/ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = Not Detected; Compound-specific detection limits are shown in Appendix C and [Enviropro, 1989]  
 \* After Enviropro [1989]  
 TRPH = Total Recoverable Petroleum Hydrocarbon  
 DCE = 1,1-Dichloroethylene  
 TCA = 1,1,1-Trichloroethane  
 PCE = Tetrachloroethylene  
 TCE = Trichloroethylene

TABLE 5-3  
Summary of Results of Chemical Analyses Conducted  
on Soil Samples Collected from Test Boring 83  
Mercury Aerospace Fasteners  
North Hollywood, California  
December 1990

Compound (units)	Depth (ft)										
	1	5	10	15	20	25	30	35	40	45	50
TRPH (ppm)	108*	16*	13*/ND	ND	ND	ND	ND	13	ND	23	ND
Benzene (ppb)	ND*	ND*	ND*/ND	ND	ND	ND	ND	ND	ND	21	ND
Toluene (ppb)	3*	2*	2*/ND	ND	ND	ND	ND	ND*	ND	14	ND
Xylene (ppb)	8*	6*	5*/ND	ND	ND	ND	ND	ND	ND	ND	ND
DCE (ppb)	8*	6*	3*/ND	ND	ND	ND	ND	ND	ND	ND	ND
TCA (ppb)	1*	ND*	ND*/ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = Not Detected; Compound-specific detection limits are shown in Appendix C and [Enviropro, 1989]  
 \* After Enviropro [1989]  
 TRPH = Total Recoverable Petroleum Hydrocarbon  
 DCE = 1,1-Dichloroethylene  
 TCA = 1,1,1-Trichloroethane

## 6. INTERPRETATION OF RESULTS AND CONCLUSIONS

The results of the chemical analyses presented in Section 5 can be summarized as follows:

- Concentrations of TRPH ranged from 300 ppm to less than 1 ppm at depths of 1 to 10 ft (0.3 to 3 m). Concentrations of TRPH were generally below the detection limit (1 ppm) at depths ranging from 15 to 50 ft (4.5 to 15 m). However, concentrations of TRPH increased to 450 ppm and 880 ppm at a depth of 55 ft (17 m) in Test Boring B1 and B2, respectively.
- Concentrations of aromatic volatile organic compounds were less than 13 ppb at depths ranging from 1 to 10 ft (0.3 to 3 m). Concentrations of aromatic volatile organic compounds were below detection limits at depths ranging from 15 to 55 ft (4.5 to 16.5 m) except at a depth of 45 ft (13.5 m) where benzene and toluene were detected in Test Boring B3 at concentrations equal to 21 ppb and 14 ppb, respectively.
- Concentrations of purgeable halogenated volatile organic compounds were less than 61 ppb at depths ranging from 1 to 10 ft (0.3 to 3 m). Concentrations of purgeable halogenated volatile organic compounds were below detection limits at depths ranging from 15 to 55 ft (4.5 to 16.5 m) except at a depth of 55 ft (16.5 m) where 1,1,1-trichloroethane (TCA) was detected at a concentration of 1 ppb above the detection limit in Test Boring B2.

Using the results of the chemical analyses presented in Section 5 and summarized herein, three areas were delineated within the subsurface including:

- Area No. 1, which extends from the surface to a depth of 15 ft (4.5 m),



The distribution of chemicals in Areas No. 2 and 3 is not as conventional as the distribution of chemicals in Area No. 1. One or a combination of phenomena may provide an explanation for the observed chemical distribution in Areas No. 2 and 3. The phenomena which may explain this observed chemical distribution are presented hereafter.

- The migration of chemicals from a potential surface source or from Area No. 1 through the subsurface did not follow a straight vertical pathway, but rather, followed a complex network of channeled pathways. The vertical, straight test borings and discrete sampling locations may have intercepted the channelized flow pathway in a random fashion. This would explain the apparent observed distribution of chemicals within Areas No. 2 and 3. However, it does not explain the increase in chemical concentration in Area No. 3 of the subsurface.
- Although the subsurface is mainly composed of fine to coarse sand with gravel, thin silt lenses and localized increases in silt and clay content were noticed in some of the samples collected in the subsurface. The greater affinity of chemicals to fine grained material such as clay rather than to coarse grain material such as sand may have resulted in an heterogenous residual chemical concentration distribution after natural bioremediation took place. However, the potential occurrence of this phenomenon does not explain the increase in chemical concentration in Area No. 3 of the subsurface.
- Area No. 2, area of non-detected concentrations of chemicals, separates Area No. 3 and Area No. 1 which both exhibit the highest concentration of chemicals. Therefore, the chemicals which have been detected in Area No. 3 may not originate from Area No. 1 but rather from an off-site source. Some chemicals may have migrated laterally from neighboring sites on a perched water table or on the surface of a low-permeability layer. Presence of low concentrations of chemicals in the soil may be due to the upward

## REFERENCES AND BIBLIOGRAPHY

ASTM (1990), "Annual Book of ASTM Standards; Section 4, Construction; Volume 04.08, Soil and Rock, Building Stones; Geotextiles", 1990.

CDWR (1961), Bulletin No. 104, "Planned Utilization of Groundwater Basins of the Costal Plane of Los Angeles County", Appendix A, Groundwater Geology, State of California Department of Water Resources, Southern District, Los Angeles, California. Reprinted April 1988.

CRWQCB (1989), Letter from the California Regional Water Quality Control Board, Los Angeles Region, dated December 22, 1989, to Mercury Aerospace Fasteners, North Hollywood, California.

CRWQCB (1990), Personal Communication with Mr. David Bacharowski and Ms. Laurie Morgan of the Regional Water Quality Control Board during a meeting held on April 12, 1990.

Enviropro (1989), Final report for the phase I subsurface investigation, dated May 1, 1989, submitted by Enviropro, Chatsworth, California, submitted to Mercury Aerospace Fasteners, North Hollywood, California.

GeoSyntec Consultants (formerly GSI Environmental) (1990), Work plan for the phase II subsurface investigation (well investigation program) at Mercury Aerospace Fasteners, submitted by GeoSyntec Consultants, Huntington Beach, California, to Mercury Aerospace Fasteners, North Hollywood, California.

LACDPW (1990), Personal Communication with Staff of the Los Angeles County Department of Public Works, Hydraulic and Water Conservation Division, by Bert Palmer, on May 9, 1990.

## APPENDIX A

### CRWQCB REQUIREMENTS PHASE II SUBSURFACE INVESTIGATION MERCURY AEROSPACE FASTENERS NORTH HOLLYWOOD, CALIFORNIA

3. Groundwater monitoring wells are not required during this phase of the investigation.

Your Phase II Subsurface Investigation Work Plan addressing the areas listed above is due to this Regional Board by January 30, 1990. If you have any questions concerning this matter, please contact me at (213) 266-7539, or Laurie Morgan at (213) 266-7544.



DAVID A. BACHAROWSKI  
Environmental Specialist IV

cc: Ms. Alisa Greene, U.S. EPA Region IX  
Mr. Bill Jones, L.A. Co. Dept. of Health Services

Enclosures

6. Comply with chain of custody procedures. Discrete, undisturbed samples will be taken, sealed, and transported to the laboratory for analyses. Samples submitted for laboratory analyses are not to be used for field screening.
7. The proposed laboratory must be State Department of Health Services registered for each analytical procedure specified. EPA Methods 8240 or 8010/8020 are required. Supplement with Methods necessary for any site chemicals, past and present.
8. At a minimum, EPA sample holding times and conditions must be observed. However, samples held over seven (7) days may be suspect and not considered representative of site conditions.
9. EPA practical quantitation limits (5 to 10 µg/kg for selected VOC) are required. Analytical results must indicate detection limits and whether a chemical potentially exists (trace).
10. Laboratory QA/QC requirements include: field, sample and reagent blanks, calibration check standards, spiked samples, total recoverables, laboratory control standard, and duplicates.

GROUNDWATER (HYDROGEOLOGY): Ground water must be sampled if any boring encounters a saturated zone. Site specific exceptions may be made in consultation with Board staff.

1. Provide a contingency plan for conversion of borings that encounter saturated zones to ground water sampling wells. This should include permitting and well design, construction, and development specifications.
2. Provide protocols for field analysis, water sampling, handling and transport.
3. EPA Methods 601/602 or appropriate 500 Series Methods must be used supplemented by appropriate Methods for nitrates and any chemicals used on site.

ADDITIONAL REQUIREMENTS:

1. Submit a copy of the results of any previous subsurface investigations conducted at the site.
2. Submit a time schedule. The proposed activities must be completed within 6 to 8 weeks of plan approval.
3. A CALIFORNIA REGISTERED GEOLOGIST OR ENGINEER OR CERTIFIED ENGINEERING GEOLOGIST WITH FIVE YEARS SOILS OR HYDROGEOLOGIC EXPERIENCE SHALL DIRECT OR CONDUCT THESE INVESTIGATIONS AND PROPERLY SIGN OFF THE FINAL REPORT FOR THE REPORT TO BE ACCEPTED AND APPROVED.
4. Work shall not be proceed without prior approval and staff notification at least one week prior to initiating field work.

- the well. This screen should extend a minimum of 20 feet below and 10 feet above the water table.
4. The boring should not penetrate a competent clay layer below the saturated zone.
  5. Casing must be suspended and centralized such that it is not resting against the sides nor bottom of the hole prior to fixing in place.
  6. Place grout of either cement or cement/bentonite in an appropriate manner to avoid bridging.
  7. Establish benchmarks relative to mean sea level. Provide benchmark location and survey date. Measure water levels to 0.01 foot. Also provide well location using UTM Coordinates.
  8. Describe methods to develop well such that the waters sampled are representative of the formation water. The water sampled must have less than 10 ppm settleable solids.

#### WATER SAMPLING

1. Describe details of sample collection:
  - o Water sampling devices to be used,
  - o Procedures to minimize loss of samples by adsorption and/or volatilization,
  - o Purge techniques, tests (temp., pH, conductivity) to assure the collection of a representative water sample.
2. Describe methods for handling the samples collected.

#### SAMPLE ANALYSES

##### GENERAL

1. The laboratory must be certified by the California Department of Health Services for the specific required procedures.
2. Laboratory procedures and QA/QC sheets must be submitted with the results in the technical report.
3. Limits of detection must approach EPA's practical quantitation limits.
4. Proper chain of custody procedures must be used.

SOILS: Specify EPA Methods to determine existing facility contaminants, also use the required EPA Methods 8240 or 8010/8020 to quantify volatile organics to EPA's practical quantitation limits. Specify detection limits.

WATER: Specify EPA Methods to quantify contaminants found in soil, also use EPA Methods 601/602 or 624. Specify detection limits. Submit samples to the laboratory in unfiltered form and report sample turbidity.

#### REPORTS

Four copies of final reports should be submitted with all information requested.

## APPENDIX B

### LOGS OF TEST BORINGS

# BORING RECORD

PROJECT: MERCURY PHASE II SUBSURFACE INVESTIGATION  
LOCATION: 11800 SHERMAN WAY, NORTH HOLLYWOOD, CA 91609-9759  
PROJECT NO.: P1590 DRILLER: BEYLIK DRILLING, INC.  
TASK NO.: 02 RIG TYPE: B61 HOLLOW STEM AUGER  
DATE: 10-24-90 BORING DIAMETER: 6 INCHES  
GEOLOGIST: B. PALMER/H. AZZOUZ BORING NO.: 3

DEPTH (FT)	SAMPLE NO.	BLOWS PER 6 INCHES	% RECOVERY	DESCRIPTION AND CLASSIFICATION	COMMENTS
				Top 2": asphalt	Hand-augered to 5'.
5				Brownish-yellow, fine-medium sand with silt, 10-20% gravel, typically 2"-3" in diameter; cobbles up to 5" in diameter, slightly moist, loose-medium dense [SW/SM].	Gravels and cobbles of igneous/metamorphic origin, probably derived from the Santa Monica and San Gabriel Mountains.
10					
11	B3-S1	25/35/43	80%		
15	B3-S2	7/17/28	80%		
20	B3-S3	8/11/24	80%		
25	B3-S4	22/32/45	80%		
30	B3-S5	25/36/43	80%		
35	B3-S6	17/26/37	80%	Sand component becomes very fine to fine with increasing amounts of silt (about 30%). [SM]	
40	B3-S7	20/26/35	70%		
45	B3-S8	17/24/40	20%		
50	B3-S9	24/31/40	85%		
55	B3-S10	26/34/47	80%		Termination depth: 55' No ground water encountered.



# BORING RECORD

PROJECT: MERCURY PHASE II SUBSURFACE INVESTIGATION  
 LOCATION: 11800 SHERMAN WAY, NORTH HOLLYWOOD, CA 91609-9759  
 PROJECT NO.: P1590 DRILLER: BEYLIK DRILLING, INC.  
 TASK NO.: 02 RIG TYPE: B61 HOLLOW STEM AUGER  
 DATE: 10-25-90 BORING DIAMETER: 6 INCHES  
 GEOLOGIST: B. PALMER/H. AZZOUZ BORING NO.: 1

DEPTH (FT)	SAMPLE NO.	BLOWS PER 6 INCHES	% RECOVERY	DESCRIPTION AND CLASSIFICATION	COMMENTS
				Asphalt: top 2 inches	Hand-augered top 5 feet
5				Brownish-yellow, fine-medium sand with about 10% silt. Intermittent gravel, typically 1"-2", but up to 5" in diameter, slightly moist, loose-medium dense. [SW-SM]	
10	B1-S1	7/16/22	80%	At 8': Same as above except sand is medium-coarse.	Gravels of igneous/metamorphic composition, probably derived from the Santa Monica and San Gabriel Mountains.
15	B1-S2	11/16/21	95%	Same as 5'	
20	B1-S3	11/21/27	95%	Same as 5' except sand is medium-coarse.	
25	B1-S4	7/11/16	95%	At 25': Sandy silt layer, about 2' thick [ML]	No gravels encountered
30	B1-S5	17/26/33	30%	Same as 5' except sand is medium-coarse.	Gravels observed. (see description above)
35	B1-S6	19/25/35	0%	Same as 5'	Gravel occurrence increases: harder to drill.
40	B1-S7	15/21/27	50%	Same as 5' except sand is medium-coarse.	
45	B1-S8	39/37/45	40%	Same as 5'	
50	B1-S9	26/31/29	80%	Same as 5'	Gravel occurrence increases: harder to drill.
55	B1-S10	27/36/42	80%	Same as 5' except sand is medium-coarse.	Termination depth: 55' No ground water encountered.

## APPENDIX C

### LABORATORY RESULTS

LABORATORY NUMBER: 200911  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: MERCURY PHASE II

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/07/90  
DATE REPORTED: 11/08/90  
PAGE 2 OF 60

METHOD: EPA 418.1  
TOTAL PETROLEUM HYDROCARBONS IN SOILS AND WASTES BY IR

LAB ID	SAMPLE ID	TPH (mg/Kg)
1	B1-S1 (b) @ 10'	ND (10)
2	B1-S2 (b) @ 15'	ND (10)
3	B1-S3 (b) @ 20'	ND (10)
4	B1-S4 (b) @ 25'	ND (10)
5	B1-S5 (b) @ 30'	35
6	B1-S7 (b) @ 40'	ND (10)
7	B1-S8 (b) @ 45'	ND (10)
8	B1-S9 (b) @ 50'	17
9	B1-S10 (b) @ 50'	450
10	B4-S1 (b) @ 1'	300
10D	B4-S1 (b) @ 1'	290
11	B4-S2 (b) @ 5'	ND (10)
12	B4-S3 (b) @ 10'	ND (10)
13	B2-S1 (b) @ 11.5'	ND (10)
14	B2-S2 (b) @ 15'	ND (10)
15	B2-S3 (b) @ 20'	23
16	B2-S4 (b) @ 25'	ND (10)
17	B2-S5 (b) @ 30'	ND (10)
18	B2-S6 (b) @ 35'	ND (10)
19	B2-S7 (b) @ 40'	26
20	B2-S8 (b) @ 45'	17
20D	B2-S8 (b) @ 45'	15
21	B2-S9 (b) @ 50'	21
22	B2-S10 (b) @ 55'	880

ND = NOT DETECTED; METHOD DETECTION LIMIT IN PARENTHESES.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 104

LABORATORY NUMBER: 200911  
 CLIENT: GSI ENVIRONMENTAL  
 PROJECT #: 1590  
 LOCATION: MERCURY PHASE II

DATE RECEIVED: 10/26/90  
 DATE ANALYZED: 11/07/90  
 DATE REPORTED: 11/08/90  
 PAGE 4 OF 60

METHOD: EPA 418.1  
 TOTAL PETROLEUM HYDROCARBONS IN AQUEOUS SOLUTIONS BY IR  
 EXTRACTION: EPA 3510 SEPERATORY FUNNEL

LAB ID	SAMPLE ID	TPH (mg/L)
24	FIELD EQUIP BLANK	ND (1.0)
LB	LAB BLANK	ND (1.0) OK
MS	METHOD SPIKE (40)	36.7 OK
MSD	METHOD SPIKE DUPLICATE (40)	36.9 OK

ND = NOT DETECTED; METHOD DETECTION LIMIT IN PARENTHESES.

#### QA/QC DATA SUMMARY:

Precision (Relative % Difference):	1
Accuracy (Spike % Recovery):	92



LABORATORY NUMBER: 200911-1  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B1-S1(B)@10.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/02/90  
DATE REPORTED: 11/08/90  
PAGE 5 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
--ug/Kg--		
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100



LABORATORY NUMBER: 200911-2  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B1-S2(B)@15.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/02/90  
DATE REPORTED: 11/08/90  
PAGE 6 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100



LABORATORY NUMBER: 200911-4  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B1-S4(B)@25.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/02/90  
DATE REPORTED: 11/08/90  
PAGE 8 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
--ug/Kg--		
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100

LABORATORY NUMBER: 200911-6  
 CLIENT: GSI ENVIRONMENTAL  
 PROJECT #: 1590  
 LOCATION: SUBMITTED BY CLIENT  
 SAMPLE ID: B1-S7(B)@40.0'

DATE RECEIVED: 10/26/90  
 DATE ANALYZED: 11/02/90  
 DATE REPORTED: 11/08/90  
 PAGE 10 OF 60

METHOD: EPA 8010  
 VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
 Accuracy (Spike % Recovery): 100





LABORATORY NUMBER: 200911-8  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B1-S9(B)@50.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/02/90  
DATE REPORTED: 11/08/90  
PAGE 12 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
--ug/Kg--		
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100

LABORATORY NUMBER: 200911-10  
 CLIENT: GSI ENVIRONMENTAL  
 PROJECT #: 1590  
 LOCATION: SUBMITTED BY CLIENT  
 SAMPLE ID: B4-S1(B)@1.0'

DATE RECEIVED: 10/26/90  
 DATE ANALYZED: 11/06/90  
 DATE REPORTED: 11/08/90  
 PAGE 14 OF 60

METHOD: EPA 8010  
 VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
 Accuracy (Spike % Recovery): 100

LABORATORY NUMBER: 200911-12  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B4-S3(B)@10.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/03/90  
DATE REPORTED: 11/08/90  
PAGE 16 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100



LABORATORY NUMBER: 200911-14  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B2-S2(B)@15.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/05/90  
DATE REPORTED: 11/08/90  
PAGE 18 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
--ug/Kg--		
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100



LABORATORY NUMBER: 200911-16  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B2-S4(B)@25.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/05/90  
DATE REPORTED: 11/08/90  
PAGE 20 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
--ug/Kg--		
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100



LABORATORY NUMBER: 200911-18  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B2-S6(B)@35.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/05/90  
DATE REPORTED: 11/08/90  
PAGE 22 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100



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LABORATORY NUMBER: 200911-20  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B2-S8(B)@45.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/06/90  
DATE REPORTED: 11/08/90  
PAGE 24 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100



LABORATORY NUMBER: 200911-22  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B2-S10(B)@55.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/06/90  
DATE REPORTED: 11/08/90  
PAGE 26 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
--ug/Kg--		
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	6	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 3  
Accuracy (Spike % Recovery): 78





Curtis &amp; Tompkins, Ltd.

LABORATORY NUMBER: 200911-27  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B3-S10(B)@55.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/06/90  
DATE REPORTED: 11/08/90  
PAGE 29 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):  
Accuracy (Spike % Recovery):

3  
78



LABORATORY NUMBER: 200911-28  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B3-S1(B)@11.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/05/90  
DATE REPORTED: 11/08/90  
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METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
--ug/Kg--		
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 94



LABORATORY NUMBER: 200911-31  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B3-S4(B)@25.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/06/90  
DATE REPORTED: 11/08/90  
PAGE 33 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
--ug/Kg--		
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 94



LABORATORY NUMBER: 200911-32  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B3-S5(B)@30.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/06/90  
DATE REPORTED: 11/08/90  
PAGE 34 OF 60

METHOD: EPA 8010  
VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
---ug/Kg---		
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 94

LABORATORY NUMBER: 200911-34  
 CLIENT: GSI ENVIRONMENTAL  
 PROJECT #: 1590  
 LOCATION: SUBMITTED BY CLIENT  
 SAMPLE ID: B3-S7(B)@40.0'

DATE RECEIVED: 10/26/90  
 DATE ANALYZED: 11/06/90  
 DATE REPORTED: 11/08/90  
 PAGE 36 OF 60

METHOD: EPA 8010  
 VOLATILE HALOCARBONS IN SOIL AND WASTES

COMPOUND	RESULT	PQL
	--ug/Kg--	
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
1,1,2-Trichloroethane	ND	5
trans-1,3-Dichloropropene	ND	5
Dibromochloromethane	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
Tetrachloroethene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Chlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5

ND = NOT DETECTED.

PQL = PRACTICAL QUANTITATION LIMIT.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
 Accuracy (Spike % Recovery): 94



LABORATORY NUMBER: 200911-1  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B1-S1(B)@10.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/02/90  
DATE REPORTED: 11/08/90  
PAGE 37 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION LIMIT
-----		
	--ug/Kg--	
Benzene	ND	5
Toluene	ND	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

-----  
QA/QC DATA SUMMARY:  
-----

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 98  
-----



LABORATORY NUMBER: 200911-3  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B1-S3(B)@20.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/02/90  
DATE REPORTED: 11/08/90  
PAGE 39 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION LIMIT
--ug/Kg--		
Benzene	ND	5
Toluene	ND	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 98



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LABORATORY NUMBER: 200911-5  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B1-S5(B)@30.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/02/90  
DATE REPORTED: 11/08/90  
PAGE 41 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION
		LIMIT
-----		
		--ug/Kg--
Benzene	ND	5
Toluene	ND	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 98





LABORATORY NUMBER: 200911-7  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B1-S8(B)@45.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/02/90  
DATE REPORTED: 11/08/90  
PAGE 43 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION
		LIMIT
-----		
		--ug/Kg--
Benzene	ND	5
Toluene	ND	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 98



LABORATORY NUMBER: 200911-9  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B1-S10(B)@50.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/03/90  
DATE REPORTED: 11/08/90  
PAGE 45 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION LIMIT
-----		
		--ug/Kg--
Benzene	ND	5
Toluene	ND	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 98



LABORATORY NUMBER: 200911-11  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B4-S2(B)@5.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/03/90  
DATE REPORTED: 11/08/90  
PAGE 47 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION LIMIT
--ug/Kg--		
Benzene	ND	5
Toluene	ND	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 98



LABORATORY NUMBER: 200911-25  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B3-S8(B)@45.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/06/90  
DATE REPORTED: 11/08/90  
PAGE 49 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION
		LIMIT
		--ug/Kg--
Benzene	21	5
Toluene	14	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):  
Accuracy (Spike % Recovery):

2  
98

LABORATORY NUMBER: 200911-27  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B3-S10(B)@55.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/06/90  
DATE REPORTED: 11/08/90  
PAGE 51 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION LIMIT
--ug/Kg--		
Benzene	ND	5
Toluene	ND	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	98



LABORATORY NUMBER: 200911-29  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B3-S2(B)@15.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/06/90  
DATE REPORTED: 11/08/90  
PAGE 53 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION
		LIMIT
-----		
		--ug/Kg--
Benzene	ND	5
Toluene	ND	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100



LABORATORY NUMBER: 200911-31  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B3-S4(B)@25.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/06/90  
DATE REPORTED: 11/08/90  
PAGE 55 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION LIMIT
--ug/Kg--		
Benzene	ND	5
Toluene	ND	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

QA/QC DATA SUMMARY:

Precision (Relative % Difference):	2
Accuracy (Spike % Recovery):	100



LABORATORY NUMBER: 200911-33  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
LOCATION: SUBMITTED BY CLIENT  
SAMPLE ID: B3-S6(B)@35.0'

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/06/90  
DATE REPORTED: 11/08/90  
PAGE 57 OF 60

METHOD: EPA 8020  
VOLATILE AROMATIC HYDROCARBONS IN SOILS & WASTES  
EXTRACTION: EPA 5030 PURGE & TRAP

COMPOUND	RESULT	DETECTION LIMIT
-----		
		--ug/Kg--
Benzene	ND	5
Toluene	ND	5
Ethyl benzene	ND	5
Total xylenes	ND	5
Chlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5

ND = NOT DETECTED.

QA/QC DATA SUMMARY:

Precision (Relative % Difference): 2  
Accuracy (Spike % Recovery): 100





LABORATORY NUMBER: 200911-23  
CLIENT: GSI ENVIRONMENTAL  
PROJECT #: 1590  
SAMPLE ID: TRIP BLANK

DATE RECEIVED: 10/26/90  
DATE ANALYZED: 11/05/90  
DATE REPORTED: 11/08/90  
PAGE 59 OF 60

METHOD: EPA 624  
VOLATILE ORGANICS IN WATER

COMPOUND	RESULT	PQL
--ug/L--		
Chloromethane	ND	10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
Methylene chloride	ND	5
Acetone	ND	10
Carbon disulfide	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
cis-1,2-Dichloroethene	ND	5
trans-1,2-Dichloroethene	ND	5
Chloroform	ND	5
Freon 113	ND	5
1,2-Dichloroethane	ND	5
2-Butanone	ND	10
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
Vinyl acetate	ND	10
Bromodichloromethane	ND	5
1,2-Dichloropropane	ND	5
cis-1,3-Dichloropropene	ND	5
Trichloroethylene	ND	5
Dibromochloromethane	ND	5
1,1,2-Trichloroethane	ND	5
Benzene	ND	5
trans-1,3-Dichloropropene	ND	5
2-Chloroethylvinyl ether	ND	10
Bromoform	ND	5
2-Hexanone	ND	10
4-Methyl-2-Pentanone	ND	10
1,1,2,2-Tetrachloroethane	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
Chlorobenzene	ND	5
Ethyl benzene	ND	5
Styrene	ND	5
Total xylenes	ND	5

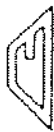
QA/QC SUMMARY: SURROGATE RECOVERIES PQL = PRACTICAL QUANTITATION LIMIT

1,2-Dichloroethane-d4	99%
Toluene-d8	108%
Bromofluorobenzene	97%

# CHAIN OF CUSTODY RECORD - TEST REQUEST

## GSI ENVIRONMENTAL

16541 Goddard Street, Suite 211  
Huntington Beach, California 92647  
Telephone: (714) 843-6866, Telefax: (714) 848-2407



Observation Well I.D. No.: _____				Project No.: 1590		
Samplers (signatures): <u>Best Palmer &amp; Hayden Rogers</u>				Project Title: Mercury Phase II		
Sample I.D. No.	Date	Time	Container Description	No. of Containers	Required* Analyses	Comments
B159(b) [50']	10-25-90	AM	Brass liner	1	EPA 418.1 EPA 8010 EPA 8020	PGL of 5-10 ppb • Sample aliquot from center of sleeve.
B1510(b) [50']	"	"	"	"	"	"
B4511(b) [4']	"	"	"	"	"	"
B452(b) [5']	"	PM	"	"	"	"
B453(b) [10']	"	PM	"	"	"	"
Relinquished by <u>[Signature]</u>			Date	26/10/90	Time	3:00
Relinquished by <u>[Signature]</u>			Date	26/10/90	Time	3:00
Method of Shipment: <u>Courier</u>			Airbill (or shipping invoice) Number: _____			

CHAIN OF CUSTODY RECORD - TEST REQUEST

GSI ENVIRONMENTAL

16541 Gothard Street, Suite 211  
Huntington Beach, California 92647  
Telephone: (714) 843-6866, Telefax: (714) 848-2407



Observation Well I.D. No.: <u>W-1</u>		Project No.: P1590				
Samplers (signatures): <u>Haydon Hazzaz &amp; Bert Palmer BSP</u>		Project Title: Mercury Phase II				
Sample I.D. No.	Date	Time	Container Description	No. of Containers	*Required Analyses	Comments
B2-51(b) 11.5'	24-10 90	AM	Bross liner	1	EPA 418.1 EPA 8010	POL of 5-10pp sample aliquot
B2-52(b) 15'	24-10 90	AM	" "	1	" "	from center of sleeve (liner)
B2-53(b) 20'	24-10 90	AM	" "	1	" "	
B2-54(b) 25'	24-10 90	AM	" "	1	" "	
B2-55(b) 30'	24-10 90	AM	" "	1	" "	
B2-56(b) 35'	24-10 90	AM	" "	1	" "	
B2-57(b) 40'	24-10 90	AM	Bross liner	1	EPA 418.1 EPA 8010	
Relinquished by <u>[Signature]</u>	Date <u>26/10/90</u>	Time <u>3:00</u>	Received by <u>[Signature]</u>			
Relinquished by	Date	Time	Received for Laboratory by			
Method of Shipment: <u>Carrier</u>			Airbill (or shipping invoice) Number:			

## CHAIN OF CUSTODY RECORD - TEST REQUEST

## GSI ENVIRONMENTAL



16341 Gothard Street, Suite 211  
Huntington Beach, California 92647  
Telephone: (714) 843-6866, Telefax: (714) 848-2407

Observation Well I.D. No.: <u>      </u>				Project No.: <u>1590</u>		
Samplers (signatures): <u>Bert Palmer &amp; Hayden Bourz</u>				Project Title: <u>MERCURY PHASE II</u>		
Sample I.D. No.	Date	Time	Container Description	No. of Containers	Required * Analyses	Comments
B3 S1 (b) [11']	10-24-90	PM	Brass liner	1	EPA 418.1 EPA 8010 EPA 8020	POL of 5-10 ppb Sample aliquot from center of sleeve
B3 S2 (b) [15']	"	"	"	"	"	"
B3 S3 (b) [20']	"	"	"	"	"	"
B3 S4 (b) [25']	"	"	"	"	"	"
B3 S5 (b) [30']	"	"	"	"	"	"
B3 S6 (b) [35']	"	"	"	"	"	"
B3 S7 (b) [40']	"	"	"	"	"	"
Relinquished by <u>[Signature]</u>	Date <u>26/10/90</u>	Time <u>3:00</u>	Received by <u>[Signature]</u>		Date <u>10-26-90</u>	Time <u>3:00</u>
Relinquished by	Date	Time	Received for Laboratory by		Date	Time
Method of Shipment: <u>Cover</u>			Airbill (or shipping invoice) Number :			



Curtis & Tompkins, Ltd., Analytical Laboratories. Since 1878

1250 S. Boyle Ave., Los Angeles, CA 90023, Phone (213) 269-7421, Fax (213) 268-5328

EPA 624/8240 BS/BSD RESULTS WORKSHEET

SOIL SAMPLES: ACCEPTANCE CRITERIA BASED ON CLP 2/88

# SOIL MATRIX ONLY

EXTRACTION DATE: N/A

EXTRCTR: N/A

RUN DATE: 11/02/90

OPERATER: D. BAREWALD

SMPL FILE ID:

SMPL ID:

MS/BS FILE ID: ^VK125

JJ FILE ID: 200894, ET AL.

MSD/BS FILE ID: ^VD125

SURROGATES	MS/BS	% REC	STATUS	MSD/BS	% REC	STATUS
1,2-Dichloroethane-d4	49.40	99%	OK	52.95	106%	OK
Toluene-d8	48.92	98%	OK	48.42	97%	OK
Bromofluorobenzene	50.57	101%	OK	51.12	102%	OK

SPIKING COMPOUNDS	MS/BS	% REC	STATUS	MSD/BS	% REC	STATUS
*1,1-Dichloroethene	42.82	86%	OK	42.57	85%	OK
*Trichloroethene	49.57	99%	OK	47.94	96%	OK
Benzene	52.39	105%	OK	51.55	103%	OK
Toluene	49.00	98%	OK	47.84	96%	OK
+ *Chlorobenzene	50.07	100%	OK	49.08	98%	OK

Average Rec 97%

## DUPLICATE PRECISION DATA

	RPD	STATUS	MAX RPD
*1,1-Dichloroethene	1%	OK	22%
*Trichloroethene	3%	OK	24%
Benzene	2%	OK	21%
+ Toluene	2%	OK	21%
*Chlorobenzene	2%	OK	21%

Average RPD 2%

## ACCEPTABLE RECOVERIES

	LOW	HIGH
1,2-Dichloroethane-d4	70%	121%
Toluene-d8	81%	117%
Bromofluorobenzene	74%	121%
1,1-Dichloroethene	59%	172%
Trichloroethene	62%	137%
Benzene	66%	142%
Toluene	59%	139%
Chlorobenzene	60%	133%

\* QA/QC for 8010 Rec = 94% RPD = 2%

+ QA/QC for 8020 Rec = 100% RPD = 2%

Berkeley

Wilmington

Los Angeles

# QUANT REPORT

Operator ID: DAVE  
Output File: ^UB737::D6  
Data File: >UB737::D6  
Name: BLANK  
Misc: 11/02/90 DJB;IS(7A)

Quant Rev: 6      Quant Time: 901102 20:23  
Injected at: 901102 19:42  
Dilution Factor: 1.00000

ID File: ID\_624::DB  
Title: Daily Calibration via Single Point at 50 ug/L Rev. E  
Last Calibration: 901102 19:44

Compound	R.T.	Q ion	Area	Conc	Units	q
1) *Bromochloromethane	13.56	128.0	92443	50.00	ug/L	93
<del>2) Chloromethane</del>	2.96	50.0	9085	3.34	ug/L	92
<del>4) Bromomethane</del>	4.70	94.0	5104	3.15	ug/L	98
<del>6) Trichlorofluoromethane</del>	6.34	101.0	1152	1.40	ug/L	98
<del>8) Freon 113</del>	8.21	151.0	2176	.45	ug/L	95
<del>11) Methylene Chloride</del>	9.72	84.0	11339	2.36	ug/L	95
<del>14) 2-Butanone</del>	12.76	43.0	19893	11.39	ug/L	89
<del>15) Chloroform</del>	13.31	83.0	5856	.69	ug/L	95
16) 1,2-Dichloroethane-d4 ✓ 106%	14.75	65.0	247718	53.06	ug/L	98
18) *1,4-Difluorobenzene	15.79	114.0	695731	50.00	ug/L	93
<del>20) 1,1,1-Trichloroethane</del>	14.23	97.0	1385	.18	ug/L	89
<del>22) Benzene</del>	15.07	78.0	6896	.54	ug/L	96
32) *Chlorobenzene-d5	22.15	117.0	572727	50.00	ug/L	97
34) Toluene d-8 ✓ 77%	18.95	98.0	685966	49.67	ug/L	95
<del>35) Toluene</del>	19.11	92.0	5872	.63	ug/L	97
<del>39) Ethylbenzene</del>	22.48	106.0	7117	1.18	ug/L	95
<del>40) Xylene (total)</del>	23.62	106.0	4927	.71	ug/L	97
<del>41) Styrene</del>	23.69	104.0	4328	.35	ug/L	94
43) Bromofluorobenzene ✓ 99%	24.94	95.0	339568	49.39	ug/L	92

\* Compound is ISTD

Continuing Calibration Check  
HSL Compounds

Case No: \_\_\_\_\_ Calibration Date: 11/02/90  
Contractor: Curtis & Tompkins \_\_\_\_\_ Time: 18:56  
Contract No: \_\_\_\_\_ Laboratory ID: JUS836  
Instrument ID: HP 5995 \_\_\_\_\_ Initial Calibration Date: 11/01/90

Minimum RF for SPEC is 0.300

Maximum % Diff for CCC is 25.0%

Compound	$\overline{\text{RF}}$	RF	%Diff	CCC	SPEC
2-Hexanone	.18422	.16917	8.17		
Tetrachloroethene	.40501	.43786	8.11		
Chlorobenzene	.94558	1.03508	9.46	**	
Ethylbenzene	.47858	.52450	9.59	*	
Xylene (total)	.53147	.60313	13.48		
Styrene	.97329	1.08410	11.38		
1,1,2,2-Tetrachloroethane	.39689	.43998	10.86	**	
Bromofluorobenzene	.60489	.60017	.78		

RF - Response Factor from daily standard file at 50.00 ug/L

$\overline{\text{RF}}$  - Average Response Factor from Initial Calibration Form UI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (\*) SPEC - System Performance Check Compounds (\*\*)

# GC/MS PERFORMANCE STANDARD

## Bromofluorobenzene (BFB)

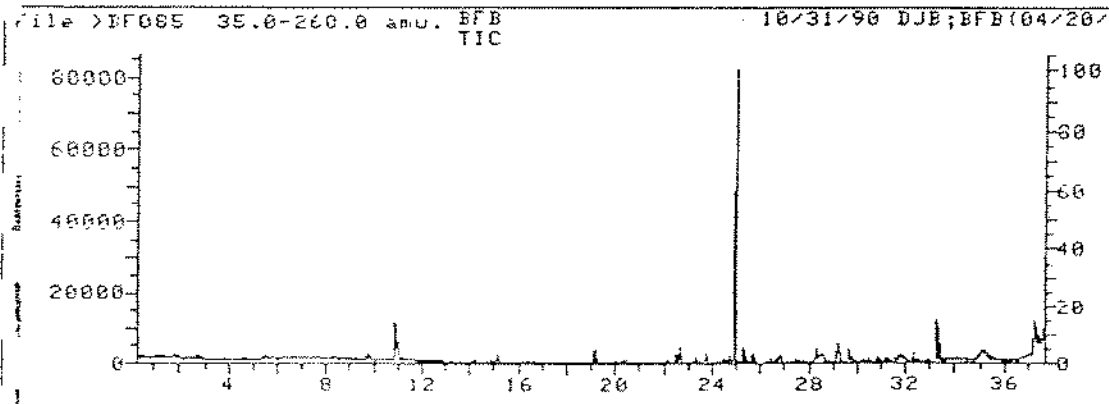
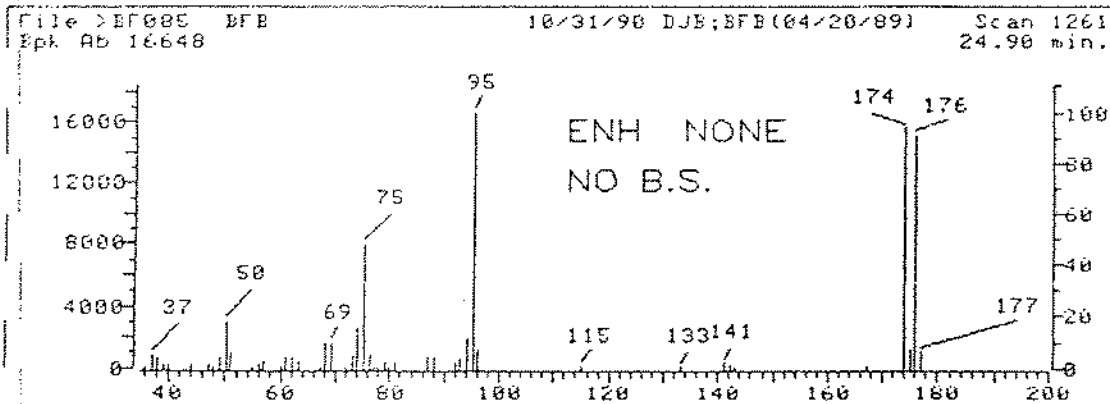
m/z	Ion Abundance Criteria	% Relative Abundance		Status
		Base Peak	Appropriate Peak	
50	15-40% of mass 95	18.11	18.11	Ok
75	30-60% of mass 95	47.79	47.79	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	7.06	7.06	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	93.69	93.69	Ok
175	5-9% of mass 174	6.82	7.28	Ok
176	95-101% of mass 174	90.64	96.75	Ok
177	5-9% of mass 176	5.95	6.56	Ok

Injection Date: 10/31/90

Injection Time: 20:56

Data File: >BF085

Scan: 1261





Initial Calibration Data  
HSL Compounds

Case No: \_\_\_\_\_ Instrument ID: HP 5995

Contractor: Curtis & Tompkins Calibration Date: 11/01/90

Contract No: \_\_\_\_\_

Minimum RF for SPCC is 0.300 Maximum % RSD for CCC is 30.0%

Compound	Laboratory ID: >VSC75 >VSC76 >VSC77 >VSC78 >VSC79					RF	% RSD	CORR1	CCC	SPCC
	RF	RF	RF	RF	RF					
	20.00	50.00	100.00	150.00	200.00					
Toluene d-8	1.29482	1.23526	1.14515	1.10072	1.11026	1.17724	7.178	.999731		
Toluene	.79570	.82889	.73719	.72738	.71579	.76099	6.422	.999472	* ✓	
2-Hexanone	.18586	.19061	.19357	.19623	.15485	.18422	9.156	.977802		
Tetrachloroethene	.42651	.44383	.38705	.38384	.38383	.40501	6.971	.999367		
Chlorobenzene	.97245	1.02646	.91837	.90852	.90210	.94558	5.613	.999542	** ✓	
Ethylbenzene	.52245	.52873	.46388	.44775	.43011	.47858	9.318	.998812	* ✓	
Xylene (total)	.58574	.60056	.51702	.48987	.46416	.53147	11.206	.997702		
Styrene	1.05881	1.08658	.95038	.91797	.85272	.97329	10.050	.997274		
1,1,2,2-Tetrachloroethane	.42654	.42503	.42980	.43080	.27229	.39689	17.560	.909453	** ✓	
Bromofluorobenzene	.69502	.64589	.58478	.54906	.54971	.60489	10.576	.999462		

RF - Response Factor (Subscript is amount in ug/L)

RF - Average Response Factor

%RSD - Percent Relative Standard Deviation

CORRn - Coefficient of Correlation (nth degree)

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

## GC/MS PERFORMANCE STANDARD

Bromofluorobenzene (BFB)

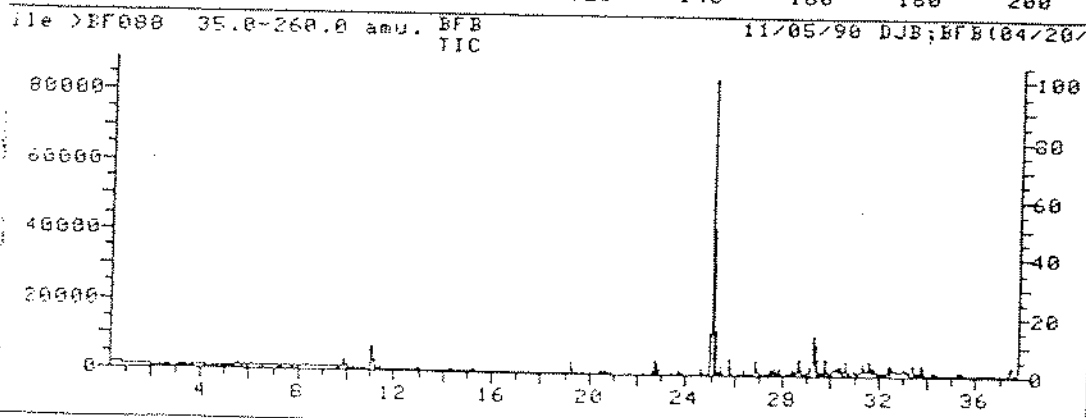
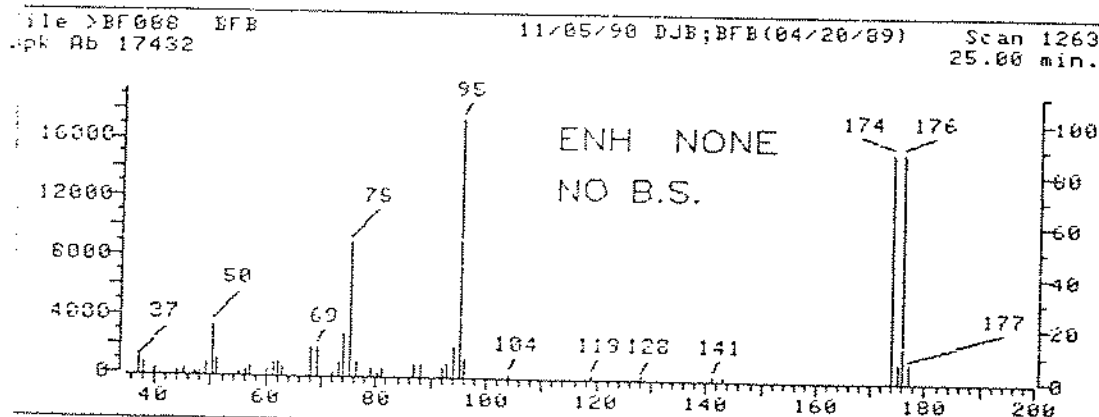
m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	% Relative Abundance Appropriate Peak	Status
50	15-40% of mass 95	18.75	18.75	Ok
75	30-60% of mass 95	51.73	51.73	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.56	6.56	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	88.17	88.17	Ok
175	5-9% of mass 174	6.06	6.87	Ok
176	95-101% of mass 174	88.13	99.95	Ok
177	5-9% of mass 176	5.95	6.75	Ok

Injection Date: 11/05/90

Injection Time: 16:29

Data File: &gt;BF088

Scan: 1263



# QUANT REPORT

Operator ID: DAVE Quant Rev: 6 Quant Time: 901105 18:10  
Output File: ^VS837::D2 Injected at: 901105 17:26  
Data File: >VS837::D6 Dilution Factor: 1.00000  
Name: 50 PPB 624 STD  
Misc: 11/05/90 DJB;VHSL(22E);VA(1A);F(1F);IS(7A)

ID File: ID\_624::D8  
Title: Daily Calibration via Single Point at 50 ug/L Rev. E  
Last Calibration: 901105 18:10

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*Bromochloromethane	13.63	128.0	67978	50.00	ug/L	90
2)	Chloromethane	2.97	50.0	103360	50.00	ug/L	93
3)	Vinyl Chloride	3.38	62.0	132996	50.00	ug/L	95
4)	Bromomethane	4.72	94.0	69094	50.00	ug/L	97
5)	Chloroethane	5.21	64.0	46151	50.00	ug/L	96
6)	Trichlorofluoromethane	6.38	101.0	24538	50.00	ug/L	94
7)	Acetone	8.43	43.0	26927	50.00	ug/L	98
8)	Freon 113	8.30	151.0	209854	50.00	ug/L	95
9)	1,1-Dichloroethene	8.32	96.0	85082	50.00	ug/L	87
10)	Carbon Disulfide	9.22	76.0	230841	50.00	ug/L	99
11)	Methylene Chloride	9.74	84.0	186775	50.00	ug/L	91
12)	1,2-Dichloroethene (total)	10.60	96.0	149509	50.00	ug/L	94
13)	1,1-Dichloroethane	11.64	63.0	106241	50.00	ug/L	92
14)	2-Butanone	12.85	43.0	75923	50.00	ug/L	82
15)	Chloroform	13.39	83.0	268599	50.00	ug/L	97
16)	1,2-Dichloroethane-d4	14.82	65.0	199006	50.00	ug/L	99
17)	1,2-Dichloroethane	15.01	62.0	264810	50.00	ug/L	96
18)	*1,4-Difluorobenzene	15.85	114.0	559882	50.00	ug/L	94
19)	Vinyl Acetate	11.99	43.0	3344	50.00	ug/L	100
20)	1,1,1-Trichloroethane	14.25	97.0	326931	50.00	ug/L	94
21)	Carbon Tetrachloride	14.82	117.0	284562	50.00	ug/L	97
22)	Benzene	15.11	78.0	515480	50.00	ug/L	99
23)	Trichloroethene	16.46	130.0	230214	50.00	ug/L	97
24)	1,2-Dichloropropane	16.73	63.0	162801	50.00	ug/L	92
25)	Bromodichloromethane	17.20	83.0	312664	50.00	ug/L	91
26)	2-Chloroethylvinylether	18.08	63.0	12801	50.00	ug/L	92
27)	cis-1,3-Dichloropropene	18.45	75.0	385834	50.00	ug/L	96
28)	trans-1,3-Dichloropropene	19.53	75.0	65073	50.00	ug/L	84
29)	1,1,2-Trichloroethane	19.80	97.0	164582	50.00	ug/L	96
30)	Dibromochloromethane	20.81	129.0	280636	50.00	ug/L	96
31)	Bromoform	24.23	173.0	220261	50.00	ug/L	97
32)	*Chlorobenzene-d5	22.20	117.0	462856	50.00	ug/L	97
33)	4-Methyl-2-Pentanone	18.22	43.0	135048	50.00	ug/L	93
34)	Toluene d-8	19.00	98.0	546096	50.00	ug/L	94
35)	Toluene	19.15	92.0	377205	50.00	ug/L	98
36)	2-Hexanone	20.05	43.0	86559	50.00	ug/L	94
37)	Tetrachloroethene	20.56	164.0	207499	50.00	ug/L	96
38)	Chlorobenzene	22.28	112.0	474635	50.00	ug/L	95
39)	Ethylbenzene	22.53	106.0	239972	50.00	ug/L	98
40)	Xylene (total)	23.67	106.0	280992	50.00	ug/L	98
41)	Styrene	23.72	104.0	499634	50.00	ug/L	95
42)	1,1,2,2-Tetrachloroethane	24.78	83.0	215637	50.00	ug/L	96
43)	Bromofluorobenzene	24.97	95.0	282545	50.00	ug/L	88

Continuing Calibration Check  
HSL Compounds

Case No: \_\_\_\_\_ Calibration Date: 11/05/90  
Contractor: Curtis & Tompkins \_\_\_\_\_ Time: 17:26  
Contract No: \_\_\_\_\_ Laboratory ID: >US837  
Instrument ID: HP 5995 \_\_\_\_\_ Initial Calibration Date: 11/01/90

Minimum RF for SPCC is 0.300 Maximum % Diff for CCC is 25.0%

Compound	RF	RF	%Diff	CCC	SPCC
2-Hexanone	.18422	.18701	1.51		
Tetrachloroethene	.40501	.44830	10.69		
Chlorobenzene	.94558	1.02545	8.45	**	✓
Ethylbenzene	.47658	.51846	8.33	*	✓
Xylene (total)	.53147	.60708	14.23		
Styrene	.97329	1.07946	10.91		
1,1,2,2-Tetrachloroethane	.39689	.46588	17.38	**	✓
Bromofluorobenzene	.60489	.61044	.92		

RF - Response Factor from daily standard file at 50.00 ug/L

RF - Average Response Factor from Initial Calibration Form VI

%Diff - % Difference from original average or curve

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

Initial Calibration Data  
HSL Compounds

Case No: \_\_\_\_\_ Instrument ID: HP 5995

Contractor: Curtis & Tompkins Calibration Date: 11/01/90

Contract No: \_\_\_\_\_

Minimum RF for SPCC is 0.300 Maximum % RSD for CCC is 30.0%

Compound	Laboratory ID: >VSC75 >VSC76 >VSC77 >VSC78 >VSC79					RF	% RSD	CORR1	CCC	SPCC
	RF	RF	RF	RF	RF					
	20.00	50.00	100.00	150.00	200.00					
Toluene d-8	1.29482	1.23526	1.14515	1.10072	1.11026	1.17724	7.170	.999731		
Toluene	.79570	.82889	.73719	.72738	.71579	.76099	6.422	.999472	* ✓	
2-Hexanone	.18586	.19061	.19357	.19623	.15485	.18422	9.156	.977802		
Tetrachloroethene	.42651	.44383	.38705	.38384	.38383	.40501	6.971	.999367		
Chlorobenzene	.97245	1.02646	.91837	.90852	.90210	.94558	5.613	.999542	** ✓	
Ethylbenzene	.52245	.52873	.46388	.44775	.43011	.47858	9.318	.998812	* ✓	
Xylene (total)	.58574	.60056	.51702	.48987	.46416	.53147	11.206	.997702		
Styrene	1.05881	1.08658	.95038	.91797	.85272	.97329	10.050	.997274		
1,1,2,2-Tetrachloroethane	.42654	.42503	.42980	.43080	.27229	.39689	17.560	.909953	** ✓	
Bromofluorobenzene	.69502	.64589	.58478	.54906	.54971	.60489	10.576	.999462		

RF - Response Factor (Subscript is amount in ug/L)

RF - Average Response Factor

%RSD - Percent Relative Standard Deviation

CORRn - Coefficient of Correlation (nth degree)

CCC - Calibration Check Compounds (\*) SPCC - System Performance Check Compounds (\*\*)

## GC/MS PERFORMANCE STANDARD

## Bromofluorobenzene (BFB)

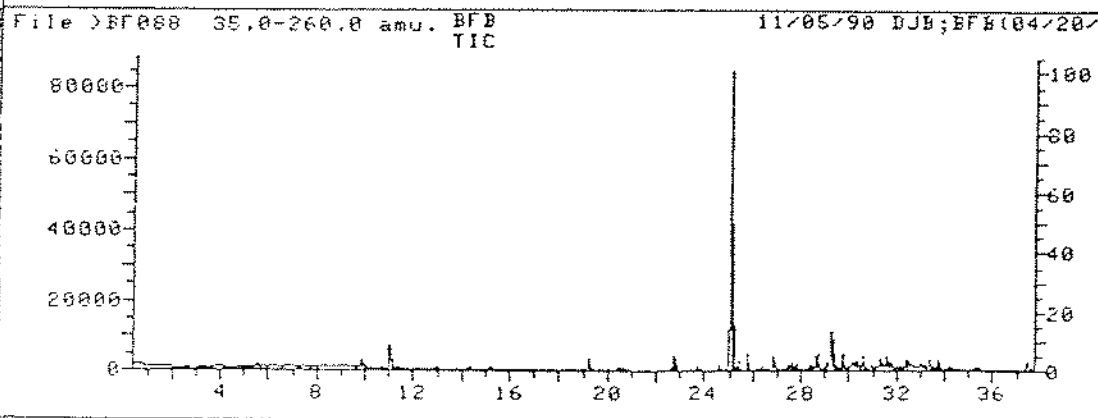
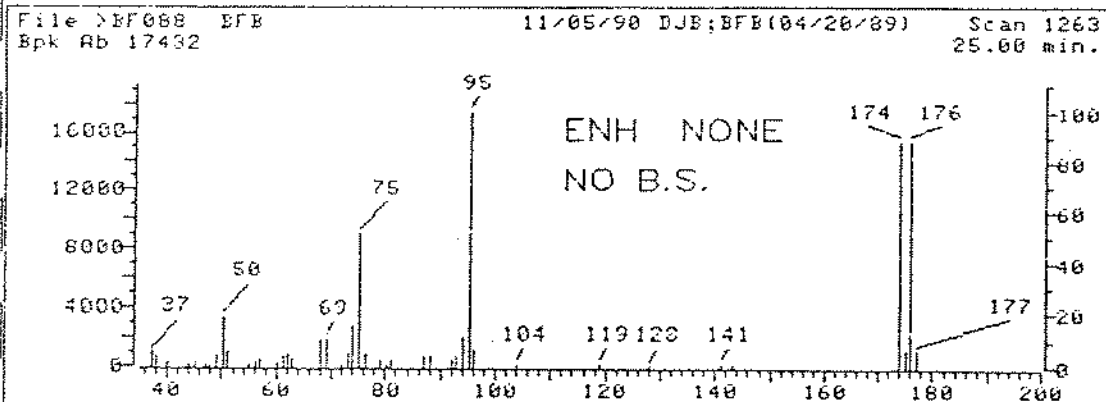
m/z	Ion Abundance Criteria	% Relative Abundance Base Peak	Appropriate Peak	Status
50	15-40% of mass 95	18.75	18.75	Ok
75	30-80% of mass 95	51.73	51.73	Ok
95	Base peak, 100% relative abundance	100.00	100.00	Ok
96	5-9% of mass 95	6.56	6.56	Ok
173	Less than 2% of mass 174	0.00	0.00	Ok
174	Greater than 50% of mass 95	88.17	88.17	Ok
175	5-9% of mass 174	6.06	6.87	Ok
176	95-101% of mass 174	88.13	99.95	Ok
177	5-9% of mass 176	5.95	6.75	Ok

Injection Date: 11/05/90

Injection Time: 16:29

Data File: &gt;BF088


Scan: 1263



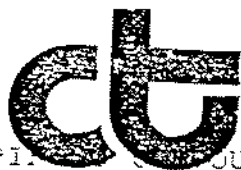
# AROMATIC HYDROCARBON ANALYSIS QUALITY CONTROL

SPIKING COMPOUND	MS/BS	%REC	STATUS	MSD/ESD	%REC	STATUS
BENZENE	18.73	94%OK		19.03	95%OK	
TOLUENE	19.12	96%OK		19.47	97%OK	
CHLOROBENZENE	40.57	101%OK		41.09	103%OK	

TRACE 602 SPIKING COMPOUND	%REC:	96%	OK
	%RPD:	2%	OK

ID: 601/602  
 TS: ug/Kg  
 ANALYZED BY: Louis Albanese  
 ANALYSIS DATE: 11/03/90  
 REVIEWED BY: 

INSTRUMENT: H.P. 5890 SERIES II  
 (MAXIMA data systems w/PID #1)



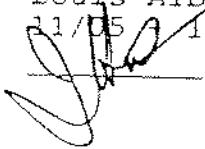
Curtis & Tompkins Analytical Laboratories, Since 1878

1250 S. Boyle Ave., Los Angeles, CA 90023, Phone (213) 269-7421 Fax (213) 268-5328

SPI. COMPOUND MS/BS %REC STATUS MSD/BS %REC STATUS

BENZENE	21.01	105%OK	19.17	96%OK
TOLUENE	20.73	100%OK	19.24	96%OK
CHLOROBENZENE	50.01	100%OK	49.81	100%OK

AVERAGE 602 SPIKING COMPOUND %REC: 100% OK  
%RPD: 6% OK

METHOD: 8020  
UNITS: ug/L  
ANALYZED BY: Louis Albanese  
ANALYSIS DATE: 11/05/90  
VIEWED BY: 

INSTRUMENT: H.P. 5890 SERIES II  
(MAXIMA data systems w/PID #1)

Berkeley

Wilmington

Los Angeles



PID#1

=====  
Sample Name : Method Blank Time : 11/5/90 1:39 PM  
Sample Number: 5 Study :  
Operator :

Interface # : 1 Channel : A A/D mV Range : 1000  
AutoSampler : None attached  
Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 3:41 PM  
Delay Time : 5.00 min.  
End Time : 55.00 min.  
Sampling Rate : 2.0000 pts/sec

1ST  
PAY BLANK

Raw Data File : C:\2700\DATA1\K2C\_005.raw  
Result File : C:\2700\DATA1\K2C\_005.rst  
Instrument File: c:\2700\data\601602.ins  
Process File : c:\2700\data\C601602.prc  
Sample File : c:\2700\data\C601602.smp  
Sequence File : C:\2700\DATA\C601602.seq

Inj. Volume : 1 ul Area Reject : 0.00  
Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
3	8.858	Vinyl Chloride	0.0000	65828.00	4060.44	BB
11	24.558	Benzene	0.0000	23442.25	4179.13	BB
14	27.375	Surrogate	0.0000	1421935.75	239084.11	BB
15	31.192	Toluene	0.0000	30510.25	5713.74	BB
16	35.575	ClBenzene	0.0000	9643.00	1755.25	BB
17	36.283	1-C-FBenzene	0.0000	2872722.50	554988.50	BB
18	36.900	m,p-Xylene	0.0000	39392.00	5829.03	BB
19	38.150	o-Xylene	0.0000	11716.76	2214.74	BB
20	39.358	BFB	0.0000	93509.50	19443.58	BB
21	40.017	BromobenzeneC	0.0000	4990373.50	964342.94	BB
26	43.575	1,3-DCE	0.0000	7342.00	1462.20	BB
27	43.783	1,4-DCE	0.0000	12725.50	2528.62	BB
29	44.900	1,2-DCE	0.0000	13987.25	2760.78	BB
			0.0000	9605579.00	1.80e6	

Missing Component Report

Component	Expected Retention (Sample File)
1,1-DCE	15.025
trans-1,2-DCE	17.833
cis-1,2-DCE	20.400
TCE	26.958
cis-1,3-DCP	28.750
trans-1,3-DCP	30.058
PCE	33.933
Ethylbenzene	36.475

Sample Name : Method Blank Time : 11/6/90 7:01 PM  
 Sample Number : 3 Study :  
 Operator : LRA

Interface # : 1 Channel : A A/D mV Range : 1000  
 AutoSampler : None attached  
 Rack/Vial : 0/0

Data Acquisition Time: 11/6/90 6:05 PM  
 Delay Time : 5.00 min.  
 End Time : 55.00 min.  
 Sampling Rate : 2.0000 pts/sec

3RD DAY  
 METHOD BLANK

Raw Data File : C:\2700\DATA\K6C\_003.raw  
 Result File : C:\2700\DATA\K6C\_003.rst  
 Instrument File: c:\2700\data\601602.ins  
 Process File : c:\2700\data\601602.prc  
 Sample File : c:\2700\data\601602.smp  
 Sequence File : C:\2700\DATA\SEQCDK6.seq

Inj. Volume : 1 ul Area Reject : 0.00  
 Sample Amount : 1.0000

#### 601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	FL
9	8.867	Vinyl Chloride	0.0000	51257.48	3574.21	BB
9	15.083	1,1-DCE	0.0000	9480.00	1564.25	BB
11	24.609	Benzene	0.0000	15901.50	2346.03	BB
13	27.417	Surrogate	0.0000	1352222.00	327184.33	BB
14	31.242	Toluene	0.0000	40110.50	7527.06	BB
15	35.608	Chlorobenzene	0.0000	10709.50	1948.38	BB
16	36.325	1-Chlorobenzene	0.0000	2629241.50	507347.16	BB
17	36.942	m,p-Xylene	0.0000	46604.75	6766.72	BB
19	38.192	o-Xylene	0.0000	13766.00	2612.52	BB
20	39.400	BFB	0.0000	3673572.75	722456.63	BB
21	40.050	BromobenzeneC	0.0000	5414144.50	991693.38	BB
27	43.617	1,3-DCB	0.0000	8515.54	1759.22	BB
28	43.825	1,4-DCB	0.0000	13466.50	2661.14	BB
29	44.942	1,2-DCB	0.0000	15674.00	3008.07	BB
			0.0000	13295266.00	2.48e6	

#### Missing Component Report

Component	Expected Retention (Sample File)
trans-1,2-DCE	17.833
cis-1,2-DCE	20.400
DCE	26.952
cis-1,3-DCP	28.750
trans-1,3-DCP	30.052
DCE	38.323
Ethylbenzene	36.475

=====

Sample Name	: 601/602 10ppb	Time	: 11/5/90 1:33 PM
Sample Number	: 3	Study	:
Operator	:		

Interface # : - 1 Channel : A A/D mV Range : 1000  
 AutoSampler : None attached  
 Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 1:35 PM  
 Delay Time : 5.00 min.  
 End Time : 55.00 min.  
 Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K2C\_003.raw  
 Result File : C:\2700\DATA1\K2C\_003.rst  
 Instrument File: c:\2700\data\601602.ins  
 Process File : c:\2700\data\601602.prc  
 Sample File : c:\2700\data\601602.smp  
 Sequence File : C:\2700\DATA1\601602.seq

Inj. Volume : 1 ul Area Reject : 0.00  
 Sample Amount : 1.0000

1st DAY  
10pt

# 601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
4	8.767	Vinyl Chloride	0.0000	35300.02	4153.65	BB
8	15.008	1,1-DCE	0.0000	180292.48	24908.39	BB
9	17.825	trans-1,2-DCE	0.0000	638169.50	109968.56	BB
11	20.392	cis-1,2-DCE	0.0000	13962.00	2542.50	BB
13	24.558	Benzene	0.0000	918491.75	163057.50	BV
17	26.950	TCE	0.0000	519768.50	94482.23	BB
18	27.375	Surrogate	0.0000	1319598.50	222368.44	BB
21	28.867	cis-1,3-DCP	0.0000	173602.25	33244.32	BB
23	30.042	trans-1,3-DCP	0.0000	203496.23	40776.54	BB
24	31.200	Toluene	0.0000	798638.50	150794.25	BB
27	33.917	PCE	0.0000	397646.50	72368.00	BB
29	35.575	Chlorobenzene	0.0000	1667306.50	323339.69	BB
30	36.292	1-Chlorobenzene	0.0000	2600790.50	499826.38	BV
31	36.483	Ethylbenzene	0.0000	713822.06	134059.08	VB
32	36.933	m,p-Xylene	0.0000	1643296.50	214979.33	BV
34	38.158	o-Xylene	0.0000	690916.00	130794.00	BB
35	39.367	BFB	0.0000	144162.50	27982.00	BB
36	40.025	BromobenzeneC	0.0000	5010254.56	972987.31	BB
41	43.575	1,3-DCB	0.0000	1433150.25	280984.59	BV
42	43.793	1,4-DCB	0.0000	1386549.25	279467.59	VB
43	44.900	1,2-DCB	0.0000	1129576.00	219021.86	BB

0.0000 21618786.00 4.00e6

## Missing Component Report

Component	Expected Retention (Sample File)
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PID#1

Sample Name : 601/602 50ppb  
Sample Number: 1  
Operator :  
Time : 11/5/90 1:28 PM  
Study :

Interface # : 1 Channel : A A/D mV Range : 1000  
AutoSampler : None attached  
Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 11:31 AM  
Delay Time : 5.00 min.  
End Time : 55.00 min.  
Sampling Rate : 2.0000 pts/sec.

1ST  
DAY  
30pt.

Raw Data File : C:\2700\DATA1\K2C\_001.raw  
Result File : C:\2700\DATA1\K2C\_001A.rst  
Instrument File: c:\2700\data\601602.ins  
Process File : c:\2700\data\601602.prc  
Sample File : c:\2700\data\601602.smp  
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00  
Sample Amount : 1.0000

### 601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
5	8.833	Vinyl Chloride	0.0000	287210.94	29107.49	VV
12	15.092	1,1-DCE	0.0000	958635.13	126056.56	BB
14	17.392	trans-1,2-DCE	0.0000	3503070.73	535030.44	BB
16	20.467	cis-1,2-DCE	0.0000	75752.48	13194.67	BB
24	24.633	Benzene	0.0000	4227732.00	741949.63	EV
30	27.025	TCE	0.0000	2641987.50	478528.56	BB
31	27.458	Surrogate	0.0000	1437687.25	240366.80	BB
34	28.950	cis-1,3-DCP	0.0000	824515.50	157382.48	BB
36	30.133	trans-1,3-DCP	0.0000	859020.00	171268.14	BB
38	31.232	Toluene	0.0000	3916798.25	728465.06	BB
40	34.000	PCE	0.0000	2208883.00	394943.31	BB
42	35.642	DiBenzene	0.0000	6790326.50	991425.38	BB
43	36.333	1-C-FFBenzene	0.0000	2757900.50	527621.88	EV
44	36.575	Ethylbenzene	0.0000	2539908.50	663614.50	VB
45	37.000	m,p-Xylene	0.0000	7928996.50	991127.88	EV
48	38.250	o-Xylene	0.0000	3419073.50	642731.63	BB
49	39.458	BFB	0.0000	141126.25	27355.43	BB
51	40.108	BromobenzeneC	0.0000	5310353.00	991164.19	BB
57	43.633	1,3-DCE	0.0000	6467432.00	990707.69	EV
58	43.842	1,4-DCE	0.0000	6256184.00	990027.25	VB
60	44.975	1,2-DCE	0.0000	5673663.50	989716.81	BB
			0.0000	69226976.00	1.14e7	

Passing Component Report  
Component

Expected Retention (Sample File)

=====

Sample Name	: 601/602 SOPPB	Time	: 11/6/90 4:58 PM
Sample Number	: 1	Study	:
Operator	: LRA		

Interface # : 1 Channel : A A/D mV Range : 1000  
AutoSampler : None attached  
Rack/Vial : 0/0

Data Acquisition Time: 11/6/90 4:01 PM  
Delay Time : 5.00 min.  
End Time : 55.00 min.  
Sampling Rate : 2.0000 pts/sec

3BR PAY  
STD.  
SOPPB

Raw Data File : C:\2700\DATA1\K6C\_001.raw  
Result File : C:\2700\DATA1\K6C\_001.rst  
Instrument File: c:\2700\data\601602.ins  
Process File : c:\2700\data\DC601602.prc  
Sample File : c:\2700\data\DC601602.smp  
Sequence File : C:\2700\DATA\SEDCDK6.seq

Inj. Volume : 1 ul Area Reject : 0.00  
Sample Amount : 1.0000

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601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	EL
5	8.742	Vinyl Chloride	0.0000	291077.21	24213.18	VB
11	15.017	1,1-DCE	0.0000	1073187.00	132770.69	BE
14	17.883	trans-1,2-DCE	0.0000	3311059.75	578595.56	BE
18	20.408	cis-1,2-DCE	0.0000	69279.48	12248.71	BE
25	24.583	Benzene	0.0000	4036653.50	705219.94	BV
31	26.983	TCE	0.0000	2451928.50	448359.28	BE
32	27.408	Surrogate	0.0000	1338352.00	224693.00	BE
35	28.908	cis-1,3-DCP	0.0000	815018.00	154962.14	BE
37	30.083	trans-1,3-DCP	0.0000	911065.50	183091.80	BE
39	31.242	Toluene	0.0000	3722632.00	694746.63	BE
43	33.967	PCE	0.0000	1968552.50	357107.63	BE
45	35.600	ClBenzene	0.0000	6596743.00	991913.31	BE
46	36.342	1-C-FBenzene	0.0000	2671631.00	512675.09	BV
47	36.542	Ethylbenzene	0.0000	3343551.50	628744.94	VB
48	36.983	m,p-Xylene	0.0000	7640410.00	991426.19	BV
52	38.217	o-Xylene	0.0000	3243166.00	611820.63	BE
53	39.425	BFB	0.0000	2630969.75	723191.75	BV
55	40.067	BromobenzeneC	0.0000	5535904.00	991610.94	BV
62	43.608	1,3-DCB	0.0000	6223545.50	991378.23	BV
64	43.817	1,4-DCB	0.0000	6005550.50	990839.56	VB
66	44.950	1,2-DCB	0.0000	5321919.50	990452.75	BE

0.0000 70272256.00 1.19e7

Missing Component Report

Component	Expected Retention (Sample File)
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ELCD #1

Sample Name : Method Blank Time : 11/5/90 7:34 PM  
 Sample Number : 2 Study :  
 Operator : .

Interface # : 1 Channel : B A/D mV Range : 1000  
 AutoSampler : None attached  
 Rack/Vial : 0/0

Data Acquisition Time: 11/5/90 6:37 PM  
 Delay Time : 5.00 min.  
 End Time : 55.00 min.  
 Sampling Rate : 2.0000 pts/sec

2ND DAY  
 BLANK

Raw Data File : C:\2700\DATA1\K5D\_003.raw  
 Result File : C:\2700\DATA1\K5D\_003.rst  
 Instrument File: c:\2700\data\601602.ins  
 Process File : c:\2700\data\601602.prc  
 Sample File : c:\2700\data\601602.smp  
 Sequence File : C:\2700\DATA\SEQCDK5.seq

Inj. Volume : 1 ul Area Reject : 0.00  
 Sample Amount : 1.0000

# 601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	BL
2	8.242	ClMethane	0.0000	7347.76	1021.80	BP
3	10.325	BrMethane	0.0000	20017.06	2156.04	BB
5	15.067	1,1-DCE	0.0000	11446.50	1638.35	BB
6	15.400	DCM	0.0000	39278.52	4647.15	BB
7	16.142	Freon113	0.0000	16730.00	2004.75	BB
8	21.158	Chloroform	0.0000	8759.49	1425.81	BB
9	23.525	1,1,1-TCA	0.0000	91072.50	12365.67	BB
11	35.608	ClBenzene	0.0000	6611.48	1206.96	BB
12	36.300	1-C-2-FBenzeneD	0.0000	2343512.50	469752.44	BB
13	38.125	1,1,2,2-TCA	0.0000	4314.52	765.08	BF
14	39.368	BFB	0.0000	3331721.00	449042.22	BD
15	40.042	Bromobenzene	0.0000	3027616.00	521837.50	BB
18	42.608	1,3-DCB	0.0000	7130.33	1173.27	BV
19	43.808	1,4-DCB	0.0000	14284.70	2394.46	VB
20	44.925	1,2-DCB	0.0000	12489.01	3110.24	BB

0.0000 9548337.00 1.47e6

## Missing Component Report

Component	Expected Retention (Sample File)
Freon12	7.800
Vinyl Chloride	8.200
o-cf5	9.150
ClEthene	10.308
Freon11	13.238
trans-1,1-DCE	17.042

444741

Sample Name : 601/602 5ppb Time : 11/5/90 1:36 PM  
Sample Number : 4 Study :  
Operator :

Interface # : 1 Channel : B A/D mV Range : 1000  
AutoSampler : None attached  
Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 2:33 PM  
Delay Time : 5.00 min.  
End Time : 55.00 min.  
Sampling Rate : 2.0000 pts/sec

1ST DAY  
5pt. Std.

Raw Data File : C:\2700\DATA1\K2D\_004.raw  
Result File : C:\2700\DATA1\K2D\_004.rst  
Instrument File: c:\2700\data\601602.ins  
Process File : c:\2700\data\D601602.prc  
Sample File : c:\2700\data\D601602.smp  
Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00  
Sample Amount : 1.0000

### 601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	SL
2	7.675	Freon12	0.0000	29615.77	3450.70	BB
3	8.217	DiMethane	0.0000	379279.50	35384.73	BB
4	8.842	Vinyl Chloride	0.0000	214578.13	27050.65	BB
5	9.200	peak5	0.0000	67370.63	4963.37	VB
6	10.300	BrMethane	0.0000	378263.06	24020.45	BB
7	10.867	DiEthane	0.0000	432805.00	34062.09	VB
9	13.275	Freon11	0.0000	343092.91	23329.67	BB
10	15.075	1,1-DCE	0.0000	572639.63	67098.70	BB
11	15.383	DCM	0.0000	1489883.63	107312.17	VB
12	16.108	Freon113	0.0000	1121521.25	104040.22	VB
13	17.858	trans-1,1-DCE	0.0000	243602.63	117232.52	BB
14	18.375	1,1-DCA	0.0000	903982.88	120974.23	VB
15	20.425	cis-1,1-DCE	0.0000	38981.48	6087.25	BB
16	21.125	Chloroform	0.0000	1265375.50	183193.47	BB
17	22.883	1,2-DCA	0.0000	838811.06	131427.59	BB
18	23.517	1,1,1-TCA	0.0000	1032400.50	135152.67	BB
19	24.925	Carbon Tetrachloride	0.0000	993302.50	136098.02	BB
21	26.433	1,2-DCP	0.0000	1048499.75	142372.11	VB
22	26.850	BDCM	0.0000	790537.31	142361.14	BB
23	26.958	TCE	0.0000	1272950.50	191821.66	VB
25	28.142	2-DEVE	0.0000	23263.70	3946.21	BB
27	28.875	cis-1,3-DCP	0.0000	471521.00	75274.34	BB
29	30.050	trans-1,3-DCP	0.0000	233676.25	46873.23	BB
30	30.508	1,1,2-TCA	0.0000	847239.63	134705.27	VB
32	32.308	BDCM	0.0000	723532.50	99822.44	BB
34	33.917	PCE	0.0000	1343104.50	206094.34	BB
36	35.575	ClBenzene	0.0000	905582.06	147731.72	BB
37	36.292	1-C-2-EBenzeneD	0.0000	3044720.50	486664.73	BB

ELCD #1

Sample Name : 601/602 20ppb Time : 11/5/90 1:31 PM  
 Sample Number: 2 Study :  
 Operator :

Interface # : 1 Channel : B A/D mV Range : 1000  
 AutoSampler : None attached  
 Rack/Vial : 0/0

Data Acquisition Time: 11/2/90 12:33 PM  
 Delay Time : 5.00 min.  
 End Time : 55.00 min.  
 Sampling Rate : 2.0000 pts/sec

1ST DAY  
 20pt. Std.

Raw Data File : C:\2700\DATA1\K2D\_002.raw  
 Result File : C:\2700\DATA1\K2D\_002.rst  
 Instrument File: c:\2700\data\601602.ins  
 Process File : c:\2700\data\601602.prc  
 Sample File : c:\2700\data\601602.smp  
 Sequence File : C:\2700\DATA\CD601602.seq

Inj. Volume : 1 ul Area Reject : 0.00  
 Sample Amount : 1.0000

## 601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	SL
1	7.592	Freon12	0.0000	32057.75	3756.39	BB
2	8.142	ClMethane	0.0000	497251.75	44650.85	BB
3	8.788	Vinyl Chloride	0.0000	458449.78	55115.72	BV
4	9.183	peak5	0.0000	55877.25	4346.85	VB
5	10.217	BrMethane	0.0000	889893.25	58652.38	BV
6	10.792	ClEthane	0.0000	1678681.50	98709.86	VB
7	13.217	Freon11	0.0000	1132893.75	66219.46	BB
8	15.033	1,1-DCE	0.0000	1529183.75	182864.70	BV
9	15.342	DCM	0.0000	3794582.00	273953.38	VV
10	16.092	Freon113	0.0000	3420307.25	296329.28	VB
11	17.842	trans-1,1-DCE	0.0000	2534788.50	351634.16	BV
12	18.350	1,1-DCA	0.0000	2861803.00	385287.06	VB
13	20.417	cis-1,1-DCE	0.0000	149461.75	22400.00	BB
14	21.117	Chloroform	0.0000	3863590.25	550731.31	BB
15	22.875	1,2-DCA	0.0000	2628884.50	399849.31	BB
16	23.508	1,1,1-TCA	0.0000	3325667.75	429727.38	BB
18	24.925	Carbon Tetrachloride	0.0000	3532217.00	467094.78	BB
20	26.433	1,2-DCP	0.0000	3152212.25	428874.69	VB
21	26.858	2DCM	0.0000	2653318.50	466424.44	BV
22	26.958	TCE	0.0000	3716683.50	547845.38	VE
24	28.150	2-CEVE	0.0000	262883.66	43855.41	BV
26	28.883	cis-1,3-DCP	0.0000	2277189.50	359902.50	BV
28	30.067	trans-1,3-DCP	0.0000	1879653.75	314994.19	BB
29	30.517	1,1,2-TCA	0.0000	2646118.50	414921.16	BB
31	32.225	DBCM	0.0000	2451830.00	344860.34	BB
33	33.933	PCE	0.0000	3842847.25	551715.50	BE
34	35.592	ClBenzene	0.0000	2733963.00	450777.00	BB
37	36.303	1-C-2-FBenzeneD	0.0000	2897346.50	466605.50	BB



ELCD#1

Sample Name : 601 50ppb Time : 11/5/90 5:30 PM  
 Sample Number : 1 Study :  
 Operator :

Interface # : 1 Channel : E A/D mV Range : 1000  
 AutoSampler : None attached  
 Rack/Vial : 0/0

Data Acquisition Time: 11/5/90 4:33 PM  
 Delay Time : 5.00 min.  
 End Time : 55.00 min.  
 Sampling Rate : 2.0000 pts/sec

Raw Data File : C:\2700\DATA1\K5D\_001.raw  
 Result File : C:\2700\DATA1\K5D\_001.rst  
 Instrument File: c:\2700\data\601602.ins  
 Process File : c:\2700\data\D601602.prc  
 Sample File : c:\2700\data\D601602.smp  
 Sequence File : C:\2700\DATA\SEQCDK5.seq

Inj. Volume : 1 ul Area Reject : 0.00  
 Sample Amount : 1.0000

## 601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	FL
1	7.625	Freon12	0.0000	21295.48	3167.86	BB
2	8.150	ClMethane	0.0000	281912.00	32236.03	BB
3	8.900	Vinyl Chloride	0.0000	260632.50	23976.51	BB
4	10.283	BrMethane	0.0000	216794.89	18253.75	BV
5	10.842	ClEthane	0.0000	316662.91	29705.78	VB
6	13.208	Freon11	0.0000	493934.50	60028.79	BB
7	15.025	1,1-DCE	0.0000	632343.38	87318.78	BV
8	15.333	DCM	0.0000	864489.63	86346.31	VV
9	16.092	Freon113	0.0000	622353.50	62732.06	VB
10	17.833	trans-1,1-DCE	0.0000	648166.56	88792.99	BV
11	18.342	1,1-DCA	0.0000	700103.63	92637.02	VB
12	20.408	cis-1,1-DCE	0.0000	23773.77	2638.42	BB
13	21.092	Chloroform	0.0000	923637.50	130533.03	BB
14	22.850	1,2-DCA	0.0000	639224.19	97815.26	BB
15	23.492	1,1,1-TCA	0.0000	704054.00	82538.35	BB
16	24.908	Carbon Tetrachloride	0.0000	733168.44	96890.98	BB
17	26.408	1,2-DCP	0.0000	674827.19	96676.16	BV
18	26.833	BDCM	0.0000	555812.50	104333.66	VV
19	26.983	TCE	0.0000	1067663.75	149003.06	VB
21	28.867	cis-1,3-DCP	0.0000	370427.94	54719.96	BV
23	30.050	trans-1,3-DCP	0.0000	225890.56	32769.74	BV
24	30.500	1,1,2-TCA	0.0000	676174.88	101874.00	VB
25	32.817	BDCM	0.0000	573192.19	75023.31	BB
26	23.925	PCE	0.0000	1003925.00	148335.94	BB
28	25.592	ClBenzene	0.0000	336012.94	60183.54	BB
29	26.508	1-C-2-FluorobenzeneD	0.0000	213193.50	48780.79	BB
30	27.208	Bromoform	0.0000	277940.44	38910.58	BB
31	38.108	1,1,2,2-TCA	0.0000	477512.00	71538.79	BB

ELCD#1

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Sample Name : 601/602 50PPB      Time : 11/6/90 4:59 PM  
 Sample Number : 1      Study :  
 Operator : LRA

Interface # : 1      Channel : B      A/D mV Range : 1000  
 AutoSampler : None attached  
 Rack/Vial : 0/0

Data Acquisition Time: 11/6/90 4:01 PM  
 Delay Time : 5.00 min.  
 End Time : 55.00 min.  
 Sampling Rate : 2.0000 pts/sec

3BR DAY  
 50pt. std.

Raw Data File : C:\2700\DATA1\K6D\_001.raw  
 Result File : C:\2700\DATA1\K6D\_001.rst  
 Instrument File: c:\2700\data\601602.ins  
 Process File : c:\2700\data\601602.prc  
 Sample File : c:\2700\data\601602.smp  
 Sequence File : C:\2700\DATA\SEDCDK6.seq

Inj. Volume : 1 ul      Area Reject : 0.00  
 Sample Amount : 1.0000

601/602 REPORT

Peak #	Ret Time [min]	Component Name	Amount [ppb]	Area [uV-sec]	Height [uV]	PL
2	7.567	Freon12	0.0000	465224.50	36501.92	BV
3	8.133	ChMethane	0.0000	2242375.50	195097.73	VB
4	8.767	Vinyl Chloride	0.0000	2038231.00	203400.31	BV
5	9.200	peak5	0.0000	851622.94	40009.34	VB
6	10.208	BrMethane	0.0000	3024757.75	174323.09	BV
7	10.775	ChEthane	0.0000	5750448.50	243812.00	VE
9	13.200	Freon11	0.0000	4620276.00	200736.03	BV
10	15.025	1,1-DCE	0.0000	4150827.25	464001.84	VV
11	15.342	DCM	0.0000	8405954.00	549213.56	VV
12	16.083	Freon113	0.0000	7396872.00	603530.38	VB
13	17.342	trans-1,1-DCE	0.0000	5630781.50	773737.13	BV
14	18.353	1,1-DCA	0.0000	6111333.00	785251.33	VB
15	20.425	cis-1,1-DCE	0.0000	387268.69	56413.94	BV
16	21.142	Chloroform	0.0000	7334324.00	920445.00	VB
17	22.900	1,2-DCA	0.0000	5260165.00	796340.63	VB
18	23.533	1,1,1-TCA	0.0000	7071014.50	861718.13	BV
21	24.953	Carbon Tetrachloride	0.0000	7056521.00	399609.50	BE
23	26.467	1,2-DCP	0.0000	5556486.50	798961.50	VB
24	26.833	BDCM	0.0000	5533704.00	391623.06	BV
25	26.992	TCE	0.0000	6650512.50	923701.25	VE
29	28.133	2-CEVE	0.0000	120170.09	20752.51	BV
31	28.917	cis-1,3-DCP	0.0000	4410157.50	691391.19	BV
33	30.100	trans-1,3-DCP	0.0000	3592394.50	592527.06	BE
34	30.550	1,1,2-TCA	0.0000	5044013.50	775465.31	BE
36	32.233	BDCM	0.0000	5249349.00	708655.33	BV
38	33.933	PCE	0.0000	6911021.50	928733.25	BE
41	35.642	ChBenzene	0.0000	5436703.00	873035.13	BE
42	36.350	1-C-2-FBenzeneD	0.0000	2840395.25	455233.50	BE